THE PHRENOLOGICAL JOURNAL AND LIFE ILLUSTRATED.

VOL. 70. 1880.

NUMBER 3.] *March, 1880.* [WHOLE No. 496

## DR. ASA GRAY,

### THE EMINENT BOTANIST.

THE first impression made upon the observer by this head and face, may be expressed in two words: harmony and strength. We see in the face close attention, and in the forehead, criticism, memory, and the power to individualize.

In the whole make-up we see industry without haste, persistency well sustained by vigor, but never mastered by it. His emotions never run away with his judgment; he never gives so heavy a blow as to cripple the nail he seeks to drive; never puts in powder enough to burst the gun, nor fires before he gets an excellent aim. The reader, in analyzing this development will observe that the eyes and forehead resemble the feminine, through which inheritance he obtains intuition, and the ability to form correct judgments instantly. Truth seems to organize itself under the gaze of his perception, as metals fuse and unite under the action of the blow-pipe.

The middle section of the head, traversed by a line drawn from the opening of one ear over the top of the head to the opening of the other ear, indicates masculine determination and energy; and the face, from just below the eye to the corner of the mouth, also expresses the same masculine traits. We judge, therefore, that from the eye to the hair, the forehead is like the mother; that from the eye to the mouth, the face is like the father. Consequently he carries his mother's quick sense of truth and her intuitive judgment in conjunction with his father's sturdy steadfastness, prudence, positiveness, and so much of courage as is necessary to give efficiency to his work. Though the back-head is not fully in view, we judge it to be rather strongly developed, as the face expresses the signs of love and affection in a marked degree. People come to like him as they have more and more to do with him; they may not be able to tell why, but they feel drawn toward him. It is easy for him to make friends anywhere.

He has a sensitive desire to please and be approved, and that, combined with his disposition to teach and communicate, and thereby to benefit others, makes him always welcome. He does not seem to be in other people's way. He works with them as a helper, rather than to drive them as a master. He has always been accustomed to lead rather than to drive; to persuade rather than to coerce.

The reader will notice that the distance from the opening of the ear to the root of the nose is very considerable, indicating long brain-fiber in the direction of intellect, and though the forehead seems retreating, the upper part of the forehead, where the reasoning organs are located, is really large, and the retreating appearance arises from extra development in the lower part of the forehead. The perceptive organs, then, take the lead, especially Individuality, which gives quick attention, and this, supplemented by Form, Size, Locality, and Comparison, makes him the wonderful analyst and critic that he is. His faculty of Color is well represented, but he will show in his expressions, and in the transaction of his professional work, more attention to, and skill in, the appreciation of form, size, and harmony of development, than he will in mere color. Hence he is interested in a plant irrespective of its blossoms. The stem and leaves to him glow with wisdom and adaptation in the organized whole; the blossom adds beauty and grace.

The organ of Order gives a squareness to the angle of the brow upward and outward from the eye, showing a tendency to method, arrangement, adjustment; and this, combined with Comparison, gives a tendency to classification.

His memory of events and of places is admirable. His judgment of character

being excellent, he adapts himself to people promptly. He has large Hope; looks on the brilliant and promising aspect of the future, and if he makes a failure, he rises from the disaster with undiminished vigor and expectation.

He has strong faith, and uncommonly strong devotional feeling. He has reverence for sacred things, for the great Creator, for men of renown and wisdom and worth.

He is cautious, perhaps more anxious than is desirable, relative to difficulties which may be in his pathway, and often meets and masters them, and wonders afterward that he should have been apprehensive of failure.

Among his friends he is frank; among strangers retiring and reticent. He appreciates value, and if he had been educated to take part in commercial affairs, would have been successful in acquiring money honorably. He is one who is inclined to put in a full day's work, to be faithful to the conditions under which he labors, and nothing comes to grief through his carelessness, inattention, or indolence.

His prominent eye, and the special fullness under it, indicate clearness and freedom of language, and this combined with the fullness of the brow and of the middle and upper sections of the forehead, give him wonderful power of description, and ability to teach and explain.

The temperament is a combination of the Vital, Motive, and Mental, and not one of these conditions seems to predominate so as to throw the system out of balance. He has brain and nerve which give sympathy and susceptibility, and power to acquire knowledge and communicate it; while the vital system gives nourishment and sustaining power to the constitution, and the Motive or frame-work temperament, gives strength, persistency, endurance, and power.

We can fairly assume that every one of our readers is fond of flowers, and so far as he or she can, takes a practical interest in their cultivation. Therefore it will afford them all much pleasure to see on our opening page the earnest face of one who is probably the most eminent botanist in America, and one who has done more than any other man to educate our people in the matters relating to plant-life. His text-books and treatises, beginning with the unpretending "Elements of Botany," which appeared as long ago as 1836, and ending with "Structural Botany," which was lately published, have always commanded wide attention in the schools and out of them, among those inclined to study in the world of vegetation.

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ASA GRAY was born in Paris, Oneida County, New York, November 18, 1810. He studied medicine and was graduated as an M.D. at Fairfield College in 1831, but finding more enjoyment in the observation of nature than in prosecuting the "healing art," gradually devoted himself to botanical work. His "Elements of Botany," and certain contributions to the periodical literature of botany, and a professorship in Michigan University, which he never filled, won for him the notice of scientific men. But in 1842 he was elected Fisher Professor of Natural History in Harvard University, and has occupied this chair ever since that time; until within about six years, teaching the classes in botany. Nearly all the leading Professors of Botany in the colleges of the United States have been students of Dr. Gray for a greater or shorter period.

Besides the volumes mentioned, Dr. Gray has published "How Plants Grow,"

"How Plants Behave," "Lessons in Botany," "Manual of Botany," and "Field, Forest, and Garden Botany." These constituted but a small part of his actual work, for he has described and named a vast number of flowering plants which have been collected in numerous exploring expeditions. These descriptions appear in Government and State Reports, and are very valuable contributions to science, but are almost lost sight of by the mass of the people. He has also given a great many papers and reviews to the American Academy of Arts and Sciences, to the *American Journal of Science and Arts, North American Review, Atlantic Monthly*, "Transactions of the American Pomological Society," and to numerous journals of agriculture and horticulture. One of his earliest contributions of this kind was a work on grasses, sedges, and the like, the former of which are of such great value to the farmer. One of his greatest works is "The Flora of North America," which was begun in 1838, and is not yet completed. The first two volumes were prepared in association with the late Dr. Torrey, of New York. These extended through the *Compositæ*. Dr. Gray has lately renewed the work and has printed part first of a third volume. In 1848 the first volume of his "Genera of the Plants of the United States" appeared. The object of this work is to describe a prominent species of each genus of plants in North America. The drawings in this work are marvels of accuracy and beauty. The work passed through two volumes, and is now rare and costly.

In connection with his other work, Dr. Gray has done considerable toward maintaining the botanic garden, greenhouses, etc., at Cambridge. In the early part of his studies, he was an industrious collector of plants and thus laid the foundation for the great herbarium at Harvard. He received the degree of LL.D. from Hamilton College in 1861. For some years he was president of the American Academy of Arts and Sciences, and in 1872 president of the American Association for the Advancement of Science. He is honorary or corresponding member of many foreign scientific societies, and intimate with leading European savants whose studies lie in analogous channels.

Although much past middle age his life has been so well-ordered that, despite its great mental activity, he has enjoyed excellent health for the most part, and is still a vigorous worker.

A writer says of his habits, that he does "not find it necessary or best to study all night, or for half the night for a part of the time, and then rapidly break down and rest or recruit for a long time. He lives on plain food. His best hour for work is from nine to ten P.M., when he is not likely to be interrupted. He retires at ten or half-past ten o'clock, sleeps well and long."

## UNITY OF THE HUMAN SPECIES.

### No. I.

### A CONSIDERATION OF THE PRINCIPLES OF EVOLUTION.

"THE question," says Mr. Darwin, "whether mankind consists of one or several species has, of late years, been much agitated by anthropologists, who are divided into two schools of monogenists and polygenists. Those who do not admit the principle of evolution must look at species either as separate creations or as in some manner distinct entities; and they must decide what forms to rank as species by the analogy of other organic beings which are commonly thus received. It is a hopeless endeavor to decide this point on sound grounds until some definition of the term 'species' is generally accepted; and the definition must not include an element which can not possibly be ascertained, such *as an act of creation*."

It is evident from this that Mr. Darwin

knows himself to be unable to combat a definition of species which claims to have originated in an act of creation; and the reason is, if man was created he did not evolve; and that he was created is rendered a necessity by all the analogies of organic being, as we shall show. By this attempt at adroit intimidation we are to be prevented from defining what species means unless we adopt Darwin's decision that it does not mean an act of creation; while this is the very thing to be proved, and of course can only be done by producing facts and evidence that inorganic things caused organizations to exist, dead things living ones, and unintelligent things those of intelligence—the very mention of which demonstrates an impossibility. But this is one of those hard necessities upon which Darwinism is obliged to depend for its existence. It in effect says: Let me shut God out of creation and from the controversy, and my chances are as good as yours to show how things originated, while neither could show anything of the kind. Thus does he beg the whole question to begin with; and is it not marvelous that such men as Sir Charles Lyell, Tyndall, and Huxley should be found adopting his theories, and declaring, as Tyndall has done, "that the evidence in proof of the modification of species furnished by Mr. Darwin is overwhelming;" by which he means that one species becomes another by animal descent; hence that all came from a single primordial form.

The definition of the term "species" we are forced to give by the natural relation of things and the physiological laws of organic life is, that it signifies those animals and plants which will not reproduce by crossing with others; and by "race" the varieties of species which, without regard to these differences, will constantly reproduce their kind. So universally do the living organisms of the world vindicate the correctness of these definitions that it leaves not the least room for Darwin's insinuation of difficulty. Every one knows that the terms "species" and "race" have been used interchangeably, designating the whole family of mankind as descended from Adam; but since the theory of evolution has been started, it has become necessary to define them both to mean "race," and discard that of species altogether; or that it signifies all the living plants and animals of the world.

That Mr. Darwin dreads the true definition of these terms is manifest by the assumption that sound definitions will and must be generally accepted; and if accepted, will prove them true.

How does such a supposition look in the historic light of scientific discovery, which shows that whenever a new truth has been brought out and defined, it has generally been rejected, and that, too, by the very men who were the foremost advocates of the science of which it claimed to be a part. No, Mr. Darwin; a *sound definition* depends solely on the question whether it is *true*, and not in the least whether any man or number of men will receive or reject it; and we shall show that the facts and laws of generated organic life render it an absolute necessity that the evolutionists must accept the definition herein maintained, though it prove fatal to their theory.

The difficulty under which the polygenists labor is seen by the following: "'Sub-species' is a term some naturalists have lately employed to designate forms which possess many of the characteristics of species. Now, if we reflect on the weighty arguments above given for raising the races of man to the dignity of species (here is the idea that races become species) and the insuperable difficulties on the other side in defining them (there are not only no *insuperable* difficulties, but none at all in our definition), the term 'sub-species' might here be used with much propriety. But from long habit the term 'race' will perhaps always be employed."—*Descent of Man*, p. 216.

It is said again, as a conclusion: "Finally, the naturalists might argue that the natural fertility of all races has not yet been fully proved; and even if it had, it would not be an absolute proof of their

specific identity." Here it is evidently implied that if the natural fertility of all races, as he calls them, was a fact, it would all but amount to demonstration of the specific identity of all species, and therefore that each had a separate creation. Now, if this has not been positively proved, then Mr. Darwin's book would contain the exception; and the only thing in his labored effort it contains having the least show of evidence in proof of the infertility of species, is that there are individuals among all species which are "sterile." This fact, however, only proves that physical derangement exists in the generative organs of such individuals. Now, if fertility is a universal fact among all the races of the human family, which all efforts at crossing have demonstrated, what is Darwin's assertion to the contrary worth? We put it with his dictation as to what kind of a definition we must or must not give to these words.

In opposition to this arrogance we have not the least hesitation in affirming that there never was an abstract idea so well ascertained and enforced by philosophic necessity and the analogies of nature as that plants and animals required acts of creation to bring into existence, and that each species had its specific progenitor or progenitors at that creation. This position is vindicated by the failure of thousands of efforts to produce a new species by crossing which would persist; made, too, by the most celebrated naturalists, and who believed in its possibility.

As every branch of natural science is employed by the evolutionists to prove that organic existences originated without the aid of an intelligent being, so is that of the identity of species. Hence if we would successfully expose these efforts we must use the same to prove the existence and intervention of such a being; without whom the universal voice of nature is, there never would have been a beginning, or succession. Suppose no name had been given to this Creator, so certainly revealed in nature, and in man especially as a part of nature, still the conception would have been as definite that such a living, personal, intelligent being existed, as abstract and before these works as the works of man prove his abstract, prior existence from his works, and that he is a living and intelligent being. We venture the remark that there never was a human being of ordinary intelligence, who had arrived at maturity, whether heathen or Christian, who had not, by his own intuition or reasoning, received this definite conception. It also follows from this that there never was a natural atheist, or evolutionist; the latter being still more unnatural and absurd. A condition of mind to become either of these requires a long process of mental training in which convictions are stifled, reason outraged, and self-indulgence gratified.

It is an undeniable fact that every sensible child learns very early, by witnessing the surrounding objects of nature, that human skill is inadequate to the task of producing them. Perhaps the first lesson has resulted from efforts to draw the pictures of flowers, birds, or animals. Here skill is brought into requisition; but the apparent rudeness between the drawings and the things forces the conviction that it required a vastly more skilled hand than they possessed even to make good resemblances; and how much greater to make the beautiful things themselves. If the parent undertakes the work, still the child discovers a marked difference in the result. Now, what would shock this child more, while laboring with this conception, than to be told that a thing far less skillful than himself or parent made the flower, bird, and animal, while these somewhat skillful creatures had failed even to make satisfactory pictures; and how much greater would the failure have been had they attempted to have made the things themselves?

Take another example. Here is a young farmer who has learned something about hen's eggs and chickens. He has found that the hen desires something of a start in a nest, as an inducement for

her to lay her eggs in it, and he makes a chalk egg for the purpose. Of course it is no more of an egg because it bears some resemblance to one than that it is anything else; but even this rude effort has exhausted his skill in organic construction. It is, however, of sufficient similarity to deceive the hen, simply because she is a hen, and has not the skill of the farmer. He has also learned that chickens are hatched from eggs simply by the hen sitting on them. He has also ascertained that even this is not essential to hatch chickens; but that the same result will follow if the eggs are otherwise exposed to the same temperature for the same length of time. With the knowledge of these facts what other conclusion could the farmer arrive at than that the hen is a natural machine, constructed by some being capable of the work for the manufacture of eggs, and the eggs for chickens; just as a saw-mill is for the manufacture of boards from logs, or a grist-mill flour from grain; and that it was just as necessary that the hen-machine should have been perfectly organized in order to turn out such work, as that the mills should have been before they were thus capable. He had also observed that this result was not owing to the quality of food fed to the hen; for the same fed to hogs—or hog-machines, if you please—would be turned into pigs. The hen had an instinctive feeling inclining her to sit on the eggs, not acquired by cultivation or imitation, but by a complication in her make-up; and for the gratification of which she patiently endured her confinement and the loss of her own flesh while sitting on the eggs for three weeks, and then to the task of bringing up a large brood of chickens. Thus, in obedience to this law of nature, the hen was impelled and induced while she lived to reproduce her kind.

The farmer's reflections upon these wonderful facts would lead him to the conclusion that nothing less than infinite intelligence was necessary to so mix the common material of which all animals are composed that this or a similar *feeling* would be an inherent *function* without which perhaps no creature would submit to the hardship and deprivation necessary to raise up future generations; and without this compensatory gratification all races and species of animals would have become extinct at the death of the first progenitors, though each were perfect in every other respect.

Suppose, still further, that the farmer had often tried the experiment of so mixing different kinds of eggs—those of hens, turkeys, geese, etc.—setting them under each other, in order to produce a new species of fowl, a half-breed, one between a hen and a turkey, looking as much like the one as the other; and that the eggs this new creature laid—if it laid any—were as perfect a cross in form and size as itself; and also that the new fowl was just as fertile in laying eggs and hatching chickens as were any of the uncrossed hens and turkeys. With these facts before his mind he would have concluded that all kinds of fowls had a common progenitor; but that that progenitor had involved in its organization the embryos of all the varieties of fowls living upon earth, and that it required infinitely more skill to make it than any one of the kinds evolved from it; and instead of being taught the lesson of the evolutionists, that this first progenitor was the lowest and simplest in the scale of organic being, he would learn that it must necessarily have been the very highest of all, involving in its structure all the peculiarities of feature, size, and color of all the fowls that had ever existed; and if it was the egg that was first, it was such a marvel of mechanical skill that none but a being of infinite wisdom could have created it.

### INCUBATION.

The following observations on the changes that occur from hour to hour during the incubation of the hen's egg, are from "Stearns' Reflections":

"The hen has scarcely sat on her eggs twelve hours before some lineaments of the head and body of the chicken appear.

The heart may be seen to beat at the end of the second day. It has at that time somewhat the form of a horse-shoe, but no blood yet appears. At the end of two days two vessels of blood are to be distinguished, the pulsation of which are visible; one of these is the left ventricle, and the other the root of the great artery. At the fiftieth hour one auricle of the heart appears, resembling a noose folded down upon itself. The beating of the heart is first discovered at the auricle, and afterward in the ventricle. At the end of seventy hours the wings are distinguishable, and on the head two bubbles for the brain: one for the fore and the other for the hind part of the head. Toward the end of the fourth day the two auricles already visible draw nearer to the heart. The liver appears the fifth day. At the end of seven days the lungs and stomach become visible; and four hours afterward the intestines, bones, and upper jaw. At the one hundred and forty-fourth hour the two ventricles are visible, and two drops of blood instead of the single one which was seen before. On the seventh day also the brain begins to have some consistency. At the two hundred and nineteenth hour of incubation the bill opens, and the flesh appears on the breast. In four hours more the ribs appear, forming from the back, and the gall-bladder becomes visible. The bill becomes green at the end of two hundred and thirty-six hours; and if the chicken be taken out of its covering, it evidently moves itself. At the two hundred and sixteenth hour the eyes appear. At the two hundred and eighty-eighth hour the ribs are perfect. At the three hundred and thirty-first hour the spleen draws near the stomach, and the lungs to the chest. At the end of three hundred and fifty-five hours the bill frequently opens and shuts, and at the end of the eighteenth day the first cry of the chicken is heard. It now gets more strength and grows continually, till at length it is able to set itself free from its confinement."

What a fine play of the imagination must it be to see in an operation of blind unknowing matter the production of such a world of wonder as thus disclosed, and which was first involved in the organic egg, as well as in the hen that produced it; and how would this be increased if the hen or egg should give birth to creatures of more complicated organization, and superior to themselves—as, for instance, a man from a monkey. Let us suppose still further that the farmer had found by his experiments that certain eggs invariably produced certain kinds of fowl. He could have them modified in size by always setting the fowls upon the largest eggs, and so also in color; but whether large or small, white, black, or speckled, each were the same identical fowl as though none of these changes had resulted—just as dogs are dogs, whether large, small, white, black, or spotted. He would also have found that these changes were not by such slow and nice shades that those of a single generation would be imperceptible, as is claimed for evolution; but that they were palpable, and often in a single season the greatest extremes were reached, and in a few generations the largest fowl was produced, as well as that all this farmer's hens are white or all black, just as he desired to have them.

By further experimenting he would have found that a certain kind of seed would produce a certain kind of fruit-tree; but that it was necessary to plant the seed in soil, and where it was exposed to the light and the heat of the sun, and that the soil must be made moist. The man possessed some skill, but he knows there is none in the seed; for skill implies volition, and this self-motion, etc. Neither is there any in the sunlight; it shines by necessity; and the rain thus falls; and that these elements are the principal constituents of the law of vegetation. But even the combination has no skill, and knows nothing of the inherent power possessed or whence it was derived. The tree, however, grows to maturity, supposing the seed was perfect, as an imperfect seed will not

produce a perfect tree, or one that will reproduce its kind. From these facts of nature he concludes that the whole phenomena of producing the original plants or seeds were the work of a being infinitely above himself. He also learns the important truth of natural science, to distinguish between creation and growth, or evolution. The first involved these laws in the elements thus related and combined, and the latter evolved the tree with its susceptibilities. THOS. MITCHELL.

## STUDIES IN COMPARATIVE PHRENOLOGY.

### CHAPTER I.—*Continued.*

#### VERTICAL SECTION OF THE SKULL OF MAN AND OF QUADRUPEDS.

THE vertical section of the skull when studied in man, and the more important species of vertebrate animals, offers great advantages to the phrenologist, and enables him to appreciate—

1st. At a single glance, the extent and form of the cerebral cavity. To be sure, it discloses but half of the interior of that bony case, but it is easy to supply mentally the half which is wanting, because of its correspondence. (See Figs. 7, 10, 11, 22, 32, 33, 34, 35, 36 37, etc.

2d. We can thus estimate by examination the different degrees of thickness in parts of the skull from the root of the nose to the farthest extremity of the occipital bone. We can also note the degree of expansion which the frontal bone presents between its two tables (frontal sinus).

3d. Its depth indicates to us the greater or less development of the cerebral parts.

The vertical section (Fig. 7) represents an oval having more extent behind than

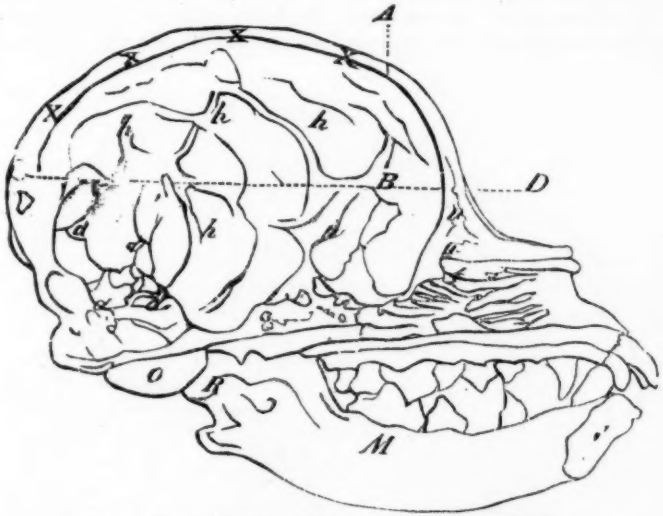



Fig. 32.—VERTICAL SECTION IN OUTLINE, SKULL OF INTELLIGENT DOG.

in front; the two tables or layers, which form the bones with their inclosing spongy substance, are about two lines in thickness. The part of the layers which corresponds to the lower portion of the frontal bone, and that where the occipital crest is seen, exhibit the greatest thickness. The region of least thickness

is that over which the cerebellum lies, and it is not more than half a line. Half of the cerebellum, and an entire hemisphere of the cerebrum, fill up the whole cavity. The internal surface is lined, in the living subject, with a fibrous membrane called dura-mater; one observes veinous vessels. One of these furrows or tracks belongs to the principal artery of the dura-mater.

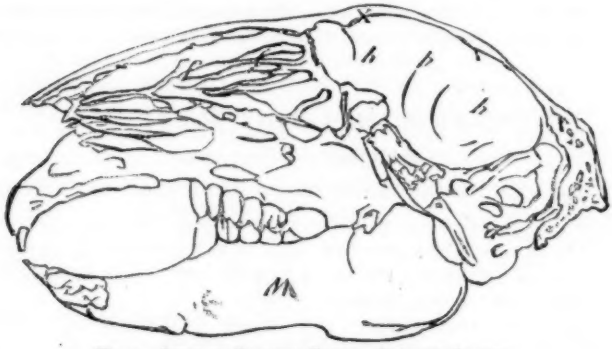


Fig. 33.—Skull of Domestic Rabbit. Vertical Section.

In quadrupeds the vertical section of the skull presents an oval also, of which the anterior part is less developed than the posterior. We shall notice in this

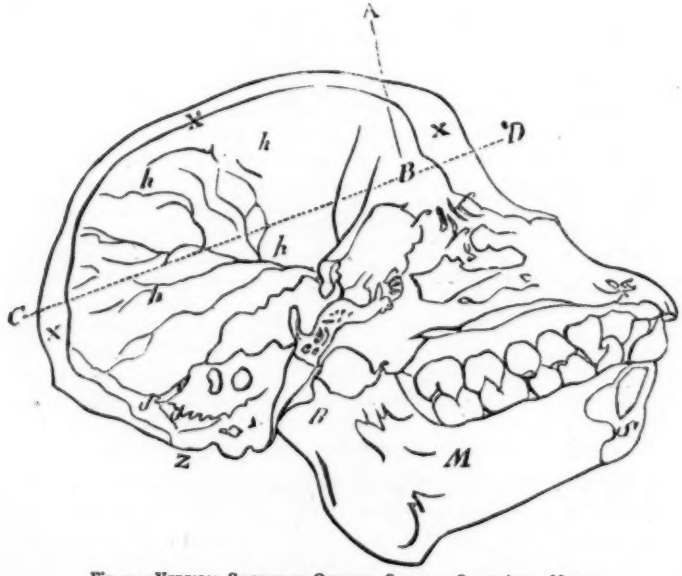


Fig. 34.—Vertical Section in Outline, Skull of Sajou Ape. Male.

therein impressions corresponding to the convolutions of the brain and several furrows in which lie the arterial and respect some remarkable differences in different animals; sometimes, between individuals of the same class, as the dog

and the fox, of which vertical sections are represented in Figs. 10 and 11, and also in individuals of the same family,

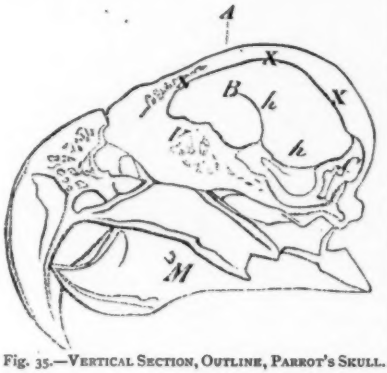



Fig. 35.—Vertical Section, Outline, Parrot's Skull.

as one sees in the vertical sections of two dogs, represented by Figs. 38, 39. Fig. 34 represents the vertical section of the skull of the Sajou ape—the common species frequently exhibited on the streets. A perpendicular line drawn through the center of the orbitar plate shows only five to six lines of depth. The longitudinal diameter represented by the line drawn from the root of the nose to the occipital bone is very pronounced; but there exists between the male and female of these species a striking difference in this respect. Fig. 40 represents the vertical section of a female skull; Fig. 36 that of the male; Figs. 41, 42, 43 represent three skulls of carnivorous animals in vertical sections; 41, that of the domestic cat; 42, that of the marten; and 43 that of the pole-cat. In the case of the cat the skull shows an elevation in the region which we have described in the ape; that is to say, from the middle of the orbitar plate, of three to four lines; in the marten it has not half of this, and it is still smaller in the pole-cat. In the fox (Fig. 11) the same region compared with that of the dog (Fig 10) presents a striking difference, as in the latter this part of the frontal bone is much more extended than in the ape.

In some species of the dog, like that which is represented in vertical section by Fig. 38, one observes enormous frontal sinuses—parts of the brain being separated from the external table in such a

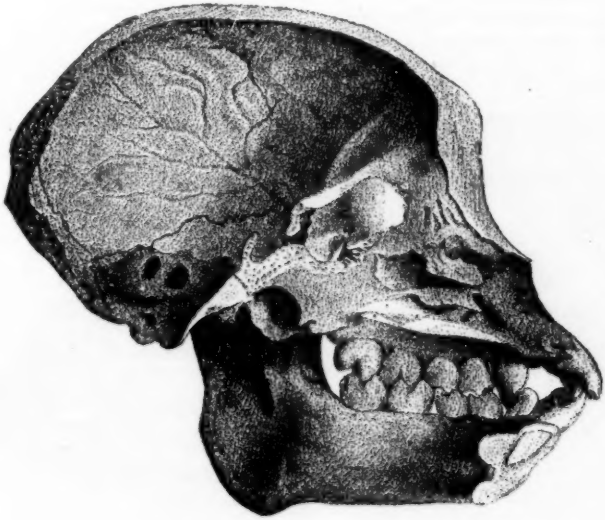


Fig. 36.—Vertical Section of Sajou Ape. Male.

way as to prevent their being exactly estimated from the exterior surface. It should be said, that the original of this particular design was diseased in brain.

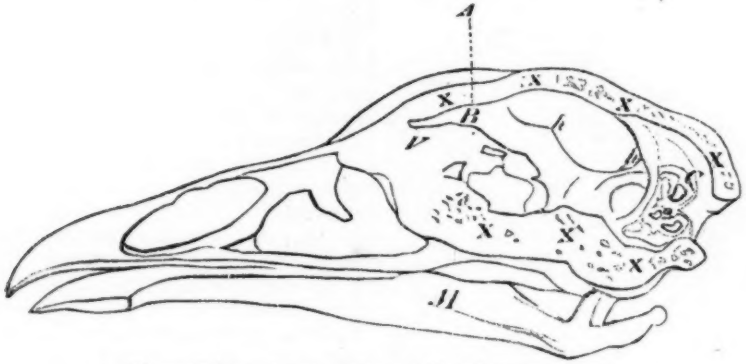



Fig. 37.—Vertical Section of Skull of Male Turkey. Outline.

The vertical section is divided into two distinct parts in certain species by the osseous plate, of which we have spoken when treating of the skull-cap or arch: one, the anterior, contains the cerebral hemispheres; the other, posterior, lodges the cerebellum. The first, as we see in the three views of heads represented by Figs. 41, 42, 43, is more extended than the other, and shows in those three species impressions corresponding to the convolutions of the brain, and some slight furrows in which lie the vessels of the dura-mater. In that division which contains the cerebellum, are seen some recesses corresponding to the principal divisions or lobes, of that part of the nervous system.

### VERTICAL SECTION OF THE CRANIUM OF BIRDS.

When divided vertically, the skulls of birds (see Figs. 44, 45, 46, 47, 48) present more height behind than in the middle and forward regions. One can see at once, on looking at the vertical section of these heads, the marked differences in

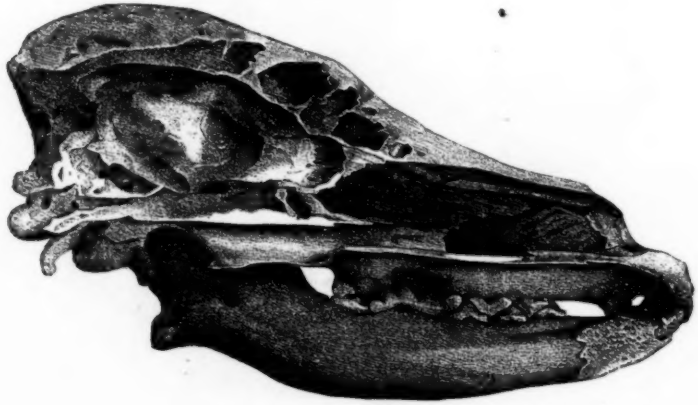


Fig. 38.—Vertical Section of Skull of Dog—Diseased.

brain area which they show. The goose (Fig. 46), the parrot (Fig. 44), the hooded-crow (Fig. 48), show a much larger cranial cavity than the turkey (Fig. 37) and the chicken (Fig. 47). As to relative brain capacity, one sees that the parrot shows the most development anteriorly, next comes the hooded-crow, then the goose. This region, on the contrary, is of little extent in the turkey and chicken, which merit the reputation they have acquired as stupid birds. It is easy to see from these views, which are drawn with the greatest fidelity to nature, that the separation existing between the two plates which compose the cranium in these

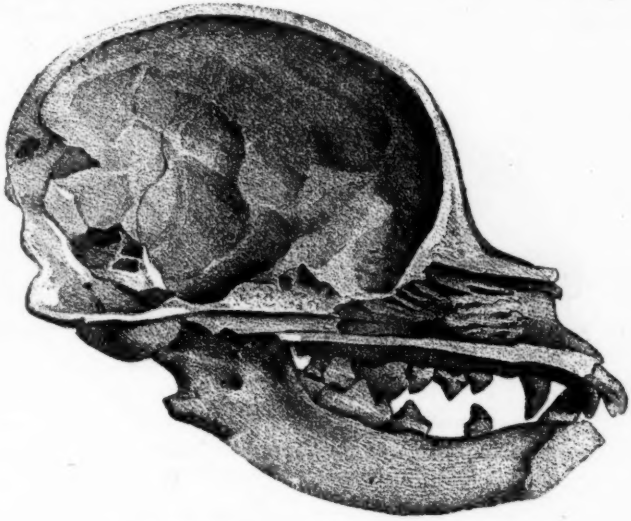


Fig. 39.—Vertical Section of Intelligent Dog's Skull.

Fig. 40.—Vertical Section Sajou Ape. Female.

birds is far from being of similar extent in all. In the parrot and hooded-crow one notices the space of nearly a line between them, which is filled with cellular tissue of slight density. In the turkey and chicken the separation is more considerable, and the tissue or diploe is extremely dense. In the blue heron the cranial parts are but slightly separated. It is the same with the wild and domestic ducks. In the owl the cranial walls show interiorly a cellular tissue of considerable extent. On this account one would obtain a very false idea of the development of the brain of this creature by simply estimating it according to the external surface. This would be the case especially with respect to the forward part, where there exists a space of some three lines between the two tables of that region. With the exception of this bird's head, in all the others there exists an almost perfect parallelism between the line marked by the internal table, and that which designates the exterior surface of the skull. We can not too much urge the reader to examine with care the accompanying illustrations, which have been very carefully prepared, and will serve them better than the most elaborate descriptions in showing the differences which nature has marked upon her creatures.

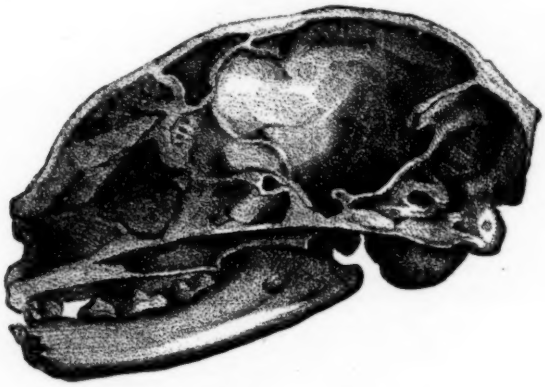


Fig. 41.—Vertical Section of Cat's Skull.

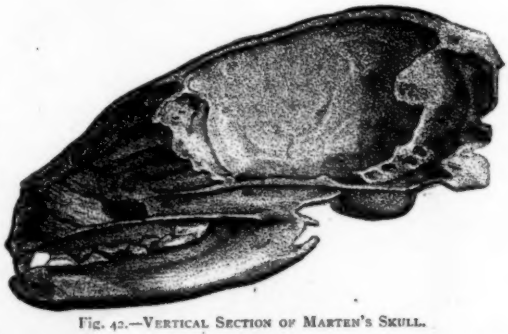


Fig. 42.—Vertical Section of Marten's Skull.

## CHAPTER II.

### BONES WHICH ENTER INTO THE COMPOSITION OF THE HUMAN SKULL—QUADRUPEDS AND BIRDS COMPARED.

The preceding chapter has been devoted to a description of the skull of man, of quadrupeds, and birds, considered in a general manner. We have endeavored to exhibit carefully the most remarkable points of the encephalic cavity, viewed according to the sections or di-

visions deemed most important. These divisions have been examined in man, also in quadrupeds and birds. It is to be deprecated that a subject so important in the physiology of the brain has been almost entirely neglected by others who

Fig. 43.—Vertical Section of Pole-cat's Skull.

have treated on Phrenology. Even Dr. Gall makes merely some incidental remarks in this respect. We take as the basis of our descriptions only nature herself, so that our positions shall be incontestable. Our illustrations have been made with a view to the faithful representation of each object indicated, and it must be apparent to the reader that without such aids it would be next to impossible for one to have a true idea of cranial anatomy.

BONES OF THE HUMAN SKULL.

The bones which enter into the composition of the human skull are eight, most of which are distinctly represented in figure 1, and, as we have seen, are the coronal or frontal, the occipital, the ethmoid, the two parietals, the sphenoid, and the two temporals. In almost all works on anatomy the writers commence their description of the bones of the skull with the coronal. Some, however, have preferred, and we think with reason, to begin with that which serves as a medium of support to all the others, that which has the most connection with them, viz, the *sphenoid*. Adopting that order, we proceed to say of the

SPHENOID

—it is so called from two Greek words, *sphen*, meaning wedge, and the particle, *eidos*, which carries with it the idea of similitude, or resemblance. The old anatomists had likened its form to that of a bat with wings extended; and one is at first struck with this comparison, but an attentive examination shows it to lack such application. The sphenoid occupies the center of the base of the skull, forming the larger part of the middle fossa (Fig. 49). The parts which have some interest to the phrenologist are those which relate to the cerebral surface of the brain. All this surface, as will be seen, is irregular, and covered by the dura-mater. Exactly in the middle we notice a fossa adapted to receive the pituitary body. (The uses of this body are not precisely known. It is found in all the mammiferæ, the quadrupeds, and birds).

In front of this fossa, and extending laterally, are two apophyses (A A), called the wings of Ingrassias, at the base of which are seen two openings (C C), through which the optic nerves pass. In front of these is a smooth surface on which lie the olfactory nerves.

The lateral parts of the cerebral face

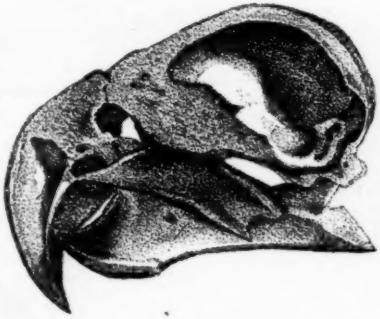


Fig. 44.—Vertical Section of Parrot's Skull.

of the sphenoid are important. A large fissure and three openings are observed in the lateral fossas. The fissures (10 10) result from the separation between the large and small wings. The openings placed upon the same line are the

large circle or foramen Vesalii (7 7), designed for the passage of the superior maxillary nerve, or second branch of the trifacial; through the oval opening (11 11) the inferior maxillary nerve or the third branch of the trifacial passes. Finally, a small opening, the spinosum (12 12), through which the artery passes which is distributed in the dura-mater and forms on the internal surface of the skull, the branches indicated on Figure 4 (skull-cap).

Fig. 45.—Vertical Section of Turkey's Skull.

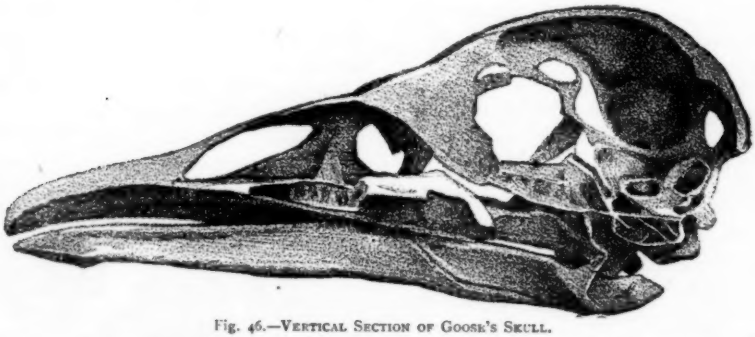


Fig. 46.—Vertical Section of Goose's Skull.

Fig. 47.—Vertical Section of Skull of Chicken (Male).

We will divide the cerebral surface of the great wings into three parts. First, an antero-interior, 2, corresponding to the orbit and forming the external part, which is deepest. Second, a superior, 1, which corresponds on the outside to the inferior temporal region, and is covered by the spreading fibers of the temporal muscle. We shall see further on that the thickness of the fibers of this muscle may become an obstacle to grasping precisely in the living subject the development of the cerebral organs occupying this region. We, however, shall indicate some signs which may serve for their approximate estimation. The third region is that marked 3. It is impossible to estimate its development exteriorly, when the brain is surrounded by its soft parts. Its external surface corresponds to the zygomatic fossa.

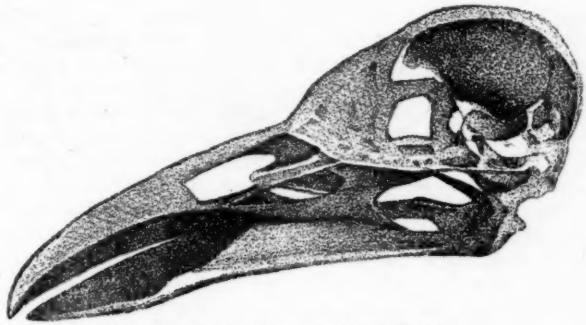


Fig. 48.—Vertical Section of Skull of Crow.

The guttural fossa of the sphenoid (Fig. 50, which represents the lower side), offers but little interest to the phrenologist. It is extremely irregular, and presents at the center a crest (8 8), which articulates with the bones known as the vomer. Outside of this crest are seen on each side two grooves for the articulation of these two bones. Farther out is an

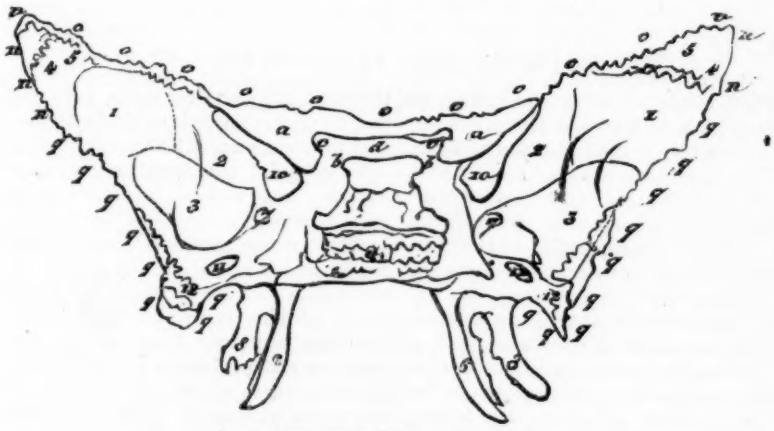


Fig. 49.—Sphenoid in Outline. Brain side.

osseous appendage known under the name, pterygoid. All this surface is very irregular and covered by the pituitary membrane. It affords attachment for several muscles belonging to the velum of the palate.

We pass by many small details of no importance to the physiologist, and which can only find place in the elaborate works on anatomy. The sphenoid articulates with the frontal bone by its large and small wings; with the vomer by the middle part of its inferior face; with the temporals by the lateral parts of its great wings; with the occipital, the ethmoid, palate-bone, and the cheek bones, and, finally, with the parietal.

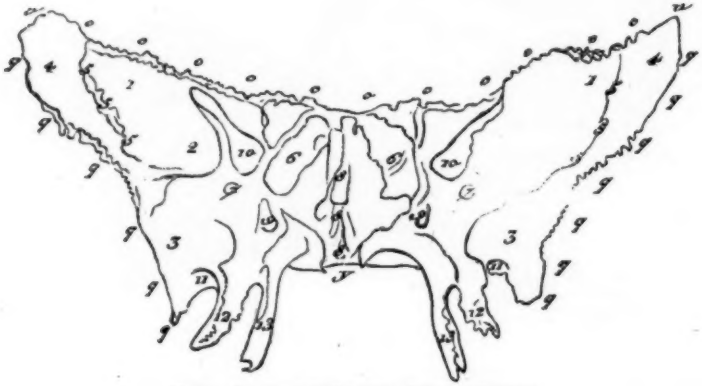


Fig. 50.—Sphenoid in Outline. Inferior Surface.

## TEMPERANCE IN HISTORY.

THE history of the human race opens with a temperance lesson. When man was placed in the Garden of Eden, *and his food assigned him*, he was warned against indulging his appetite with other things. If the account of the forbidden fruit and the transgression of the command is anything more than an allegory, it is plain that this forbidden fruit was something eatable, and the main lesson to be drawn from the whole account, is that the greatest temptations of the human race were to come through the indulgence of the appetites. The history of the race and its condition at the present day fully justify this conclusion. During the ages when the nations seem to us to have made little or no progress, the efforts of the people very generally seem to have been mostly expended in getting something to eat and to drink, and then in feasting and carousing until that was all gone. There is no doubt besides, that the savage and selfish condition that this self-indulgence breeds often brings on wars and various other evils, especially among barbarous people. At the present time we have only to scan closely the ills of life to find the cause of by far the greater part due to indulgence in the use of alcoholic liquors alone. There is abundant testimony from doctors and ministers and magistrates and benevolent associations, to show that from three-fourths to nine-tenths of all the disease and crime and sorrow and poverty in our land are due to this one cause. Do we not still need the lesson that was so impressively given to our first parents in the Garden of Eden?

How early this self-indulgence secured for itself the poisons known as intoxi-

cants we can not tell. Neither do we consider it at all wonderful that people dwelling in different parts of the world should find out, as they have, that sweet liquids, when they stand and ferment, produce an intoxicating drink. It is an almost unavoidable result in warm countries where fruit juices were used as drinks. Neither is it strange that people using these drinks should not find out at once the injuries they were receiving. We, in this practical age, and having the matter prominently before us all our lives, are finding out new things of very serious importance in this line every day. It is, indeed, hardly to be supposed that they cared to know. They liked the stuff and its immediate effects; they wanted "a good time," and they were determined to have it, let the moralists (ever in the minority) say what they pleased—and we might almost say regardless of consequences, for this must have been really the case in drinking-bouts like those in Alexander's camp, and these were neither few nor far between. Add to all the rest the fact that alcohol is a deceiver, and you have the human race pretty well entangled in the meshes of their own appetites and desires.

Does it look like a hard case? Well, they doubtless had a chance for showing their choice between good and evil, and in the end probably that will be found true of all of us. We find, in the midst of all this ignorance and barbarism and selfish indulgence, that some preferred purity and a godly life, and for this end were willing to sacrifice the indulgence of their appetites. The leading characteristic of the first religious "order" on record was abstinence from all that could intoxicate. The whole-heartedness with which they did this is affecting. They evidently did not understand the origin of the intoxicating principle, and probably in the then conditions of science they could not understand it, but they knew that somewhere and somehow it came into the wine and strong drink, and they cut it all off; and in order to be surely on the safe side, they cut off even the luscious grapes, and everything belonging to the vine. But this, be it noticed, was strictly a religious order, having in view principally the benefit of the members, not an association for the purpose of pushing and propagating an idea. It had not the aggressive element of our modern temperance societies. Still it had its adherents and members and its professors for a longer or shorter period, among whom were Samuel and Samson and John the Baptist, and probably even some of the disciples. Jeremiah gives an exquisite description of the effects of total abstinence upon these total abstainers, showing a discernment in which some of us moderns are lamentably lacking: "Her Nazarites were purer than snow; they were whiter than milk; they were more ruddy in body than rubies; their polishing was of sapphire." I wish the young men of this generation would train their eyes to discern the limnings of princely beauty that gradually show their outlines in families where the blood of successive generations is beginning to get rid of the taint of alcoholic poison.

We find Amos complaining that the Nazarites were tempted and led away; "Ye gave the Nazarites wine to drink," he says. All this goes to prove that the order was continued for many centuries; but we are also led to infer that it was only by individual and isolated acts. There appears to be no co-ordination of effort, or even association among them.

The Rechabites took one step in advance in this respect. They were all one family, and remained one tribe, and they sustained each other in the peculiarity of total abstinence. The illustration of their faithfulness is set forth in the thirty-fifth chapter of Jeremiah, and it winds up with the promise of God, through His servant, that "Jonadab, the son of Rechab, shall not want a man to stand before me forever." It is a startling fact, in striking contrast with the decay and disappearance of many other nations and tribes, that the Rechabites are still flourishing in Mesopotamia, 60,000 strong, and that they still retain and glory in this peculiarity of

total abstinence, "fine, healthy-looking men, of great simplicity, of kind manners, and very intelligent."

Much more is said about the sin of intemperance in the Prophets than in the Gospels, and it seems not unjust to infer that the warnings and instructions of the prophets may have had the effect of inducing a greater degree of temperance. This appears the more likely when we find in those Epistles addressed to the Gentiles an increasing number of references to this sin. Peter speaks very plainly: "For the time past your life may suffice us to have wrought the will *of the Gentiles* when we walked in lasciviousness, lusts, excess of wine, revelings, banquetings, and abominable idolatries."

We believe that the Jews to this day are not much given to drink. "The pagan Arabs abstained from wine long before the birth of Mohammed." "They, like certain of the Jews and early Christians, abstained totally from wine from a feeling of its injurious effects upon morals and upon health." Genuine temperance reasons, certainly. The Egyptian priesthood were total abstainers for centuries, "because wine was injurious to the nerves, oppressive to the head, an impediment to invention, and an incentive to lust."—*Schlegel.*

Homer makes his hero say:

> "Far hence be Bacchus' gifts, Hector rejoined,
> Inflaming wine, pernicious to mankind—
> Unnerves the limbs, and dulls the noble mind!"

One of the laws of Solon was that an Archon, who was the chief-magistrate, if seen drunk in public, was punished with death. One of the Carthaginian laws was that no drink save water should be used in camp, and that every judge or magistrate should abstain from wine during the year of his magistracy. The severe Roman laws that forbade wine to women and young men under penalty of death are often quoted, but it is not so generally understood that "the ancient Romans so much hated drunkards that their censors turned them out of the senate and branded them with legal infamy, as unworthy to bear public honors and offices. They thought it scandalous that men of drunken morals and (thereby) broken constitutions, and such as were noted for lewdness, should be admitted to any trust in the Government." There may be reasons why historians of the same sex should not like to repeat examples of such sterling virtue as would make the ears of many of *our* public statesmen (!) tingle in these later centuries.

Perhaps we have quoted enough to show that there is some temperance in history. We have a great deal more of the same sort we would quote but for the fear of making this article too long. We will, however, refer the earnest student to "Reid's Temperance Cyclopedia,"* where he can find accounts of the temperance measures of other nations, of moderation societies in the sixteenth and seventeenth centuries, and much else in the same line.

But if he still wonders why we have no more records of temperance in history, let him reflect how little the historians of the *present* day put temperance into history. We have, at the present time, several histories of various kinds, covering the period during which we have made some very remarkable temperance history in these United States; but how many of them do any justice to the subject? How many of them mention it at all? I have a young friend who is studying modern history with such helps as can be brought to bear in this metropolis of America, and I solicited his aid in getting light upon the subject. After some time he reported that he was not able to get one ray, excepting by *reflection*. He heard a lecturer say that in the early settlement of the American colonies, there was a prohibitory law passed in a Southern colony, which fact was introduced for the purpose of saying that the Maine law was not the first of the kind after all! There was fair reason to suppose that this would be the extent of the information they would get upon temperance history from that lecturer.

* THE TEMPERANCE CYCLOPEDIA, compiled by Rev. Wm. Reid. 8vo, 731 pages, price $2.50.

The same is the case with regard to intemperance in history. What historians have taken pains to collect and use statements with regard to the immense amount of liquor drank in this country for the last fifty years or more? Although the financial results brought about by it are of the most serious importance, what history will tell us that while the troops of General Washington were lying in a distressed and starving condition, official orders were issued and executed for rum by the barrel, as an indispensable part of their supplies? And yet the orders themselves are still in existence.

I suppose that in the minds of the great majority of writers and literary men, the temperance movement appears as a sort of fanaticism—a very good thing, perhaps, in its way, but merely a question of morals, with which they have very little concern, over which some good, but enthusiastic, people are wasting their time. I was brought into contact with one of these *litterateurs* recently, when ordering the *Medical Temperance Journal*; and with a peculiar, but satisfied smile, he said: "Do you suppose you will ever make a success of temperance?" implying by his tone that he thought it about as feasible as digging through the world to China.

All this is sufficiently discouraging, but there is one fact of great importance which, if it can be proclaimed, will greatly help the solution of this problem. Alcohol is a deceiver; it is much worse than it seems. People do not love it for what it is, but for what they imagine it to be. This fiery serpent, this venom of the still has been saying in the ears of every one of its victims, just what its prototype said to Eve in the Garden: "Ye shall not surely die." Probably very few of all the myriads that have died from its effects, suspected when they took the first glass where it would end. And this is due to the very nature of the stuff itself. Our ordinary supposition with regard to everything eatable and drinkable is that we can judge its effects upon us by experiment. We will take a little and try for ourselves. "We can tell by our feelings." Now we feel with our nerves, and almost the first thing done by the alcohol even in wines and beer and cider is to poison the nerves so that they do not feel correctly. And this is the way in which this is done. The nerves (like the brain) contain a large proportion of albumen, with much water, and, of course, they are in a moist or semi-fluid state, which is their natural condition and which is essential to their correct working. The alcohol, carried through the circulation by the blood, comes in contact with these delicate nerves, and absorbing a share of the moisture, hardens them, somewhat as it hardens the albumen in the white of an egg. The nerve is then slightly paralyzed, somewhat as it would be by a slight burn. The nice adjustment necessary to its working balance is destroyed. It can not report the condition of things correctly. This is one of the very first effects, but the partaker does not know it. On the contrary, he feels an ease and lightness; because his nerves do not report *anything* correctly, and if they did, the brain can not take correct note of it, for it is affected in a similar manner. If there was pain previously, that, too, is gone, and the subject is, for a brief space, in a pleasant, half-dreamy condition, in which nothing seems to him quite real, and it is because all his nerves are poisoned. Now let a sane man stand and look upon this man who has poisoned his nerves, and which of the two is the better able to judge of the condition of the latter? The non-drinker, of course; but the drinker refuses to believe that. The drink did him good, he knows it did; he can tell by his feelings. He does not even know that his feelings have been poisoned and deceived.

But what has this to do with our topic? Just this. The world is coming around to accept the observations and teachings of the sane man, and not of the insane. Poets may drink and bawl, and *litterateurs* may drink and scrawl, and all sorts of men may drink as much as they please, and say what they please about it afterward, the world is fast coming to the place where it will decide that these

drinking men are no more in a condition to judge of the drink and its effects upon themselves or upon the world, than so many lunatics. The fact that men thus deceived about the real effects of the drink have been writing history and poetry and philosophy, accounts for a great proportion of the historic leanings toward the drink, and the sober part of the world has not been sufficiently aware of the scientific facts of the case to expose its fallacies. Indeed, all the world has been under this delusion, and the true awakening from it is known as the temperance movement of these latter days. It is true, we believe, that the world has never before seen a systematic movement, combined with sturdy religious determination to push the matter through at all hazards, that characterizes the Christian enterprises of the present day. These, we believe, are the main underlying elements of the temperance reformation, which will yet win for it a triumphant place in history. JULIA COLMAN.

## REV. JOSEPH COOK ON THE STUDY OF HEADS.

IN one of his late Monday Lectures, Mr. Cook thus alludes to the importance of observing the head and face:

"It is singular how much instruction Carlyle gives us when he says that, until a man has studied the portrait of an author, he knows little of his system of thought. I have before me portraits of several of the renowned German professors—Kiepert, Lepsius, Curtius, Trendelenberg, Dorner, Schleiermacher, Kant—all possessed apparently of a full intellectual equipment. They are men of marvelous breadth of brain. There are five radii which ought to be studied in every man's cranial development, whether you believe in mental physiology or not. From the central point of the ear draw seven radii: one to the chin, one to the tip of the nose, one to the center of the lower forehead, one to the upper forehead, another to the top of the head, another to the back of the head, and another downward to the shoulder. I undertake to say that when you find a man with these seven radii all long, and fairly well balanced in comparative length, you will not often hear from him eccentric opinions. These seven radii are all of good length in Socrates, Plato, Æschylus, Cicero, Virgil, Seneca, Bismarck, Gladstone, Washington, Franklin, Edwards, Webster. Only wholeness and size, or quantity, quality, and *balance* of being, give what Bacon calls the large *round-about* sense, which in erratics, however brilliant, is always more or less conspicuous by its absence. There are other radii, not shown in the profile view, which are of characteristically great length in the broad German brain. I turn the page and show you Schopenhauer. A withered, narrow, eccentric man I should judge him to be, were I to meet him on the street; a small brain, an angular cranial organization, a face apparently that of a soured student, with considerable literary capacity, any amount of audacity, a long chin and sharp nose, a good lower forehead, but shallow upper forehead, and very unbalanced radii in the profile view."

## EVENING SONG.

(FROM THE GERMAN OF FALLERSLEBEN).

Softly night comes again
Over wood and field,
Murmurs Peace gently down,
And the world is stilled.

Only the brook flows on
Springing from the ledge,
Rustling as it goes on
Through the wavy sedge.

Twilight shades never bring
Rest's tranquillity;
Never bells sweetly ring
For its lullaby.

So all the anxious day
Pulseth thou, my heart;
Love Divine only may
Evening rest impart.

H. S. D.

## THROUGH THE WOODS!

THROUGH the woods I have roamed, through the dark-tangled brush,
From the waking of morn until eve's gentle hush;
But the night cometh on, when my wandering's done,
I no longer shall roam through the dark woods alone.

O thou self of myself!—thou created for me!
From Eternity launched into Time's darksome sea!
Where, O where art thou now, that thou art not revealed?
Wilt thou never stand forth with thy features unveiled?

O thou heart of my heart! O thou soul of my soul!
Still for thee I have sought, as the storms fiercely rolled;
For these woods are no place, Love, to wander alone,
Where the fairest of paths are with foul weeds o'ergrown!

Through these dim, dusky woods, O the pathway is long!
And I shudder to think that I yet may be wrong!
By some false light misled—I *have* erred in my way,
And have cried in despair for the clear light of day.

O thou mate of my soul! though we never may meet
Where the offerings of life are so frail and so fleet;
I have sought thee through life with an unflinching faith;
Now, for thee will I seek through the portals of Death!

GRACE H. HORR.

## BACKS, FACES, AND SIDE-VIEWS.

THERE is something in backs as well as faces, by which rogues may be known. It is something hard to analyze and put in words, but it is a fact. Many a rogue has that control of his countenance which makes it unreadable, when he knows you are looking at him; but let him turn, and over his back you get the true view of what he is, and he will never dream that you are getting it. You get it contrary to any wish or thought on your own part, and before you know it. You are in the mists of wonderment, and you can not tell why; but something has crossed your good opinion or hitched a dead-weight to it. He faces you again, and you look him over and over as if a personified enigma, but you make out nothing but perfection every way; but the next back view puts you again in a quandary, and you wonder which impression is the right one. His eyes may beam with a feigned sympathy, and his voice soften in hypocrisy, and his whole front view win and convince you to his wishes; but you come to a stand-still, and wonder at yourself and him, and everybody, the moment you get the back-view, and you can not tell why. He may be an actor of the most consummate art, but he can not throw the glamour of deceit over a failing of which he does not know. You may look him over at your pleasure, and finally accept the front view with its falsehoods; but some one before he dies will feel, and many heretofore, perhaps may have felt, the cruelty of his dishonesty, if not sure of the individual as an actor. Generally enough revelations open, and indisputably come to us in every-day life to convince us.

Did he know exactly how he appears with his back to us, he could possibly do something to counterfeit a further assumption of honor, but he does not. He can not look at himself and his carriage from the rear. No one can do this; but outspoken honesty shows itself in all the making up of backs as well as faces; of side-views as well as front-views, of three-quarter views, of active views, of passive as well as neuter views.

One may be born with the skill of an actor, but nature is deeper than art. One needs to be taken on every side to be known. Especially does a rogue need to be taken thus to be found out. Like

the trial-balance and balance-sheet of dishonest accounts, they will not come out even. One may put the figures in the wrong place and make it even, but an honest overlooking will detect the fraud. Not that honesty has not its several sides likewise; but honesty never shambles, never straggles, never prevaricates. Its wrath is the wrath of righteousness. Its hate is open and sincere. Its envy is the envy of justice. Its wrath may carry terror with it, and even an unreasoning fierceness, but there is right at the bottom of it for a foundation. Its hate may be filled with the bitterness of gall and wormwood, but it has grown from the provocation of a cause still more bitter. Its envy is the envy which would snatch from knavery its stolen glory and give it back to its rightful owners. It is straight up and down, and not all twisted and biased and zig-zagged. Back, front, and side-views will show this before a word is spoken. The quiet attitude will show it, or the character and expressiveness of gait will show it. It is in form and action both. Intuition grasps it readily, but logic needs more of skill and practice to reason it out with clearness. We feel it, and it is a part of ourselves, but not so easily divided with others. A thief is a thief to the detective from behind, before he has once looked into his face. A libertine carries the stamp of his villainy in a nameless something of expression, whether his face is seen or not. We know much of this by instinct, if we would heed it; but we must *see* everything proved, and barter away our trust for an evidence which is only the *bitterness* of knowledge after we have found it. There are whole dictionaries of character, both ancient and modern, revised, enlarged, abridged, and unabridged in the gait, according as we study it.

Experience helps the reason in the matter; but a child knows the same by instinct, if it would heed it. As the child is flattered from its consciousness of right, so are we. We mean most to do right and show most of charity, but lack of decision is our overthrow. We trust the wrong persons against our own sense of right, because the sense is of that higher intangible nature not to be explained. We think while we know no evil of any one, we should think none; but that is never the way that *honesty* is judged. The less sinning of rogues with rogues' hearts, judge everything by their own false nature, which may not dare to do evil through fear. The honesty most vaunted is of this sort; it is honest through fear. It is honest, ordinarily, where it must be, and gets a reputation; but perjury, theft, and social villainy may underlie all this. The greatest of honesty makes no parade of itself. It always gets the enmity of this far-famed honest class. It is always belied if not misjudged, or misjudged if not belied, and usually both by it. They can afford to do this, for only under great provocation will the souls they wrong and torture cry out. They are above noticing their wrongs though they die of them.

A woman may be read quite as much from the back as a man. A handsome pair of eyes may be very deceitful. They may bewilder and enthral only for purposes of treachery. A mouth may grow dewy with pretended feeling, and crocodile tears may flow when we least expect them. The back view lifts us out of the influence of magnetic shafts from bright eyes into a more independent atmosphere of judging. There may be too much parade of loftiness or humility; too little decision and ring; too light and sly a step, or a twist in the back, or a wriggle all over; and these are the signs of what she is, more than anything in her outward show of morality or justice. Propriety in man or woman, if aimed at for exhibition, may be overdone in the gait; if forgotten, we may read what nature has done toward it with little trouble.

There is nobility in culture or unculture alike. A polished hypocrite may do more harm than one unschooled in everything but falsity. Innocence may be entrapped by the graces of deceit more easily than by its coarseness. Padding

may fill out masks instead of form, and art may counterfeit nature with a wonder of perfectness, but it is not nature after all. It can not make the crooked straight; it can not invest itself with the life of living; it can not create a soul to put into and animate the most perfect evidences of all its genius. The art of deceit alike can not create the soul of good for its counterfeits, only a skeleton soul, to rattle as the dry bones of dead mortality, when tried upon its merits in the presence of the living, real soul. The cloven foot of deception must peep out in some way; and if faces are artful enough to deny its existence, backs will tell of its lurking presence, and gaits and side-views will reaffirm and help to convince us of their statements. The serpent can not always hide in dark places; it likes to come out and sun itself. In this same way do deceit and villainy like to assert the character beneath them, and be themselves, in their own way, a part of the time. This is why backs, side-views, and gaits are sometimes off their guard when faces speak but lies, and make the best believe them.

Shall there ever come a time when people may be known for what they are, and rewarded or condemned according to their merit? Shall our instinct ever become so unmistakable that it can not be confounded with the folly of idiosyncrasies which should not rule us?

MADGE MAPLE.

## LAMBETH PALACE.

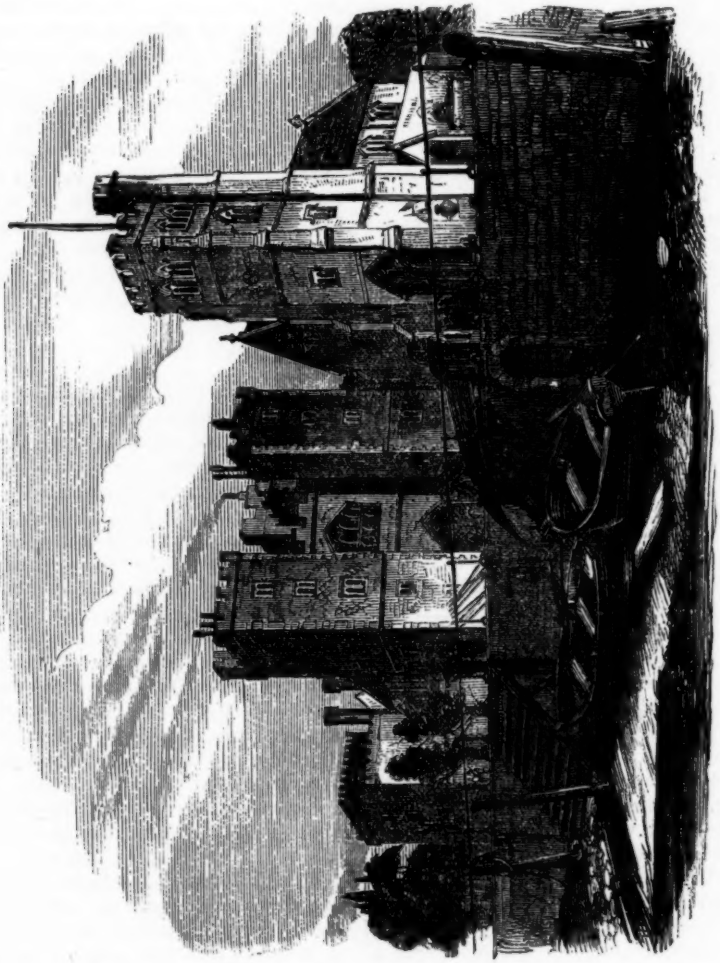
THIS irregular group of buildings, on the south side of the Thames and nearly opposite the Houses of Parliament, is associated with many incidents in English history of the most interesting character. In fact, there is no other structure in London, besides the Tower, which has a more important record. It has served as the residence of the Archbishops of Canterbury for several hundred years, having come into the possession of that See as long ago as 1197. The property was then of minor importance; but in the middle of the following century great improvements were made to the palace by Boniface of Savoy. The double tower on the left in the engraving, forming a portion of the ancient gate-house, was built by Archbishop Merton in 1490, and very much improved by Bishop Chicheley a few years later. It was once used as a prison, but is now devoted to the storage of records, many of which possess the highest importance to history.

The same bishop founded the Lollards' Tower, which stands on the extreme left, and is so called because it was used as a prison for the early reformers of that name. One room still exists in which the Lollards were confined; three iron rings to which they were chained are still fixed in the walls, and on the oaken wainscotings are numerous inscriptions which time has rendered undecipherable.

Ecclesiastics like Cranmer, Pole, Parker, Laud, and Juxon, whose names are very prominent in the religious and political events of England, lived at Lambeth, and contributed, more or less, to the renown of the venerable palace. During the civil wars in the time of Charles I. it suffered exceedingly from the violence of mobs; in Wat Tyler's rebellion the palace was plundered, and the archbishop beheaded; in 1642 the chapel and palace were devastated by the Parliament soldiers; and subsequently the former was made a dancing hall, and the latter a prison.

When Dr. Juxon was appointed to the See, after the Restoration, he found the buildings in a ruinous state and did much to restore them; adding the noble part now used as a library. The collection numbers upward of 25,000 volumes, and nearly 1,400 manuscripts. Many volumes bear the arms of the Archbishops to whom they once belonged. There are vast stores of parchment records relating to

the diocese; and forty folio volumes full of popes' bulls, and letters from popes, cardinals, princes, and kings. The gardens and grounds cover twelve acres, and are strictly private. Within the area of Dr. Hawley to the Bishopric of London. He afterward became Archbishop of Canterbury, and in that capacity officiated at the coronation of three sovereigns. Below the chapel is a crypt—the



BUILDINGS OF LAMBETH PALACE, LONDON.

the buildings is the chapel (the roof of which is seen on the right); before the altar lies Archbishop Parker. In 1813 Queen Charlotte was present in this chapel and witnessed the consecration of most ancient portion of the whole range of buildings.

Sovereigns of England have been frequent visitors here, and among others may be mentioned Henry VII., Henry

VIII., Queen Mary, Queen Elizabeth, James I., and Mary, Queen of William III. Peter the Great also visited at the palace and witnessed an ordination in the chapel. In olden times the Archbishop's barge rested on the Thames in front of the palace where now the river steamboats land their passengers on the floating stage, and scores of little row-boats nestle under the wall where formerly kings, queens, and archbishops used to land.

In the old banqueting-hall there is a fine specimen of wood-carving, the roof being entirely of oak, and the palace is paneled almost throughout with oaken work. The surroundings of Lambeth are not pleasant, that part of London having become the residence of the poorer classes, and thickly populated. D.

## WHAT SEVEN WOMEN DID.

[THE following very interesting and suggestive letter was found in a late edition of the Chicago *Inter-Ocean*. If any excuse were needed for its introduction here, let it be our sympathy for women whose hands are so full of home duties and cares that their heads can scarcely find room for a bright out-of-door thought. We should be pleased to know more about these seven women; to have photographs, as it were, of each one's mental condition, before and after their experiment in self-improvement. The story is well told as it is, and worth pondering.—ED. P. J.]

IT was not planned, it happened. Seven women began it. The seven were housekeepers who, without servants, washed and ironed, baked and served, for families of from three to eight members. Not one of the seven had received an academic education, two had not attended school since they were twelve years old. All were over forty, two were nearly sixty years of age.

One of the seven was convalescent from a severe attack of inflammatory rheumatism, and on Thanksgiving Day, the other six made her a little surprise party, not a real party, but they came in together, intending to stay an hour. The talk turned, as it usually does at such times, on the tribulations of life, the winter, and the short days when the household machinery creaks a little more than it does in the long bright days of summer.

At last one of the seven proposed they meet at each other's house once in two weeks. "We'll have a little visit," she said; "we'll fetch our knitting or mending, and we will never stay to tea. It will make the winter seem shorter."

"I sew enough at home; suppose we read some book together?" proposed another.

The sick woman who, once in her life, had seen a representation of Hamlet, suggested they read Shakespeare.

They laughed at themselves. They all said, "We can not do it;" but after talking and considering they determined to try. They were so afraid of failure they kept the matter a profound secret. Some of them did not own Shakespeare's plays. Before they bought anything they had always to say to themselves, "Can I not do without this?" So, to buy a book costing $3 meant self-denial. One went without a winter bonnet. Another made a very shabby cloak do, and purchased a copy of Shakespeare.

For the sake of order they elected a president, and at each meeting a critic was appointed to watch for mispronounced words. One of the seven owned a pronouncing handbook, and the critic was armed with it at every meeting.

They began with the play of "Julius Cæsar." Each one studied "her lesson," as the sweet old President called the reading. Each one tried to learn all she could about the history of the time the play portrayed, and at the meeting, after each one of the seven had asked six questions, if any one had failed to tell all she had learned in her answers, she volunteered the information.

It was wonderful the joy the seven got out of their meetings. They grew so interested they did not care when an observant neighbor found out all their little secret; and when one or two women asked to be admitted, the seven said "Yes," very cordially.

From reading Shakespeare's plays, they wished to know something of Shakespeare himself; of the period in which he wrote, and of his contemporaries; so, in connection with the readings, they studied up these side interests. Where did they find the books? Let one live up to the full measure of his opportunities, and his opportunities will grow. A student who had read English literature with the Boston society for study at home, was told very confidentially of the seven and their doings. How glad she was to give advice, and lend her books, only a woman who loves to help women can know.

That club yet exists; it is now eighteen months old. One of the original seven has left the town, but she goes on as well as she can alone with her lesson, and once a month writes a report to the society.

One of the original seven I know well, and love tenderly. Her lot has been very hard, her cares many, her joys few. Her hair is very white, and she is fifty-two. "I really don't know what would have become of me, if the society had not happened when it did," she said to me, with tears in her eyes. "When I was fretted by our money troubles, and tired with my work, I would sit down in my big chair and read our next lesson, and try to think what it meant, and somehow the load would melt away. If I did not read more than ten minutes I felt refreshed."

She read me an essay she had written on Shakespeare and his times. Her reading had been done in snatches of time found among many household duties. Of her essay she said, apologetically "I have so little time, I had to think it all out plain in my mind, and then form it sentence by sentence and jot it down when I could." But the essay was excellent, the facts were well told, and, in style, it was remarkably clear and simple. Her native grace of expression had been at school a year to Shakespeare, and with rich results.

Mary Putnam Jacobi says that women are much more dependent than men on the interest they feel in their work; they can not so well bear the strain of working at something they do not like. Household labor is hard and uninteresting, much of it downright toil and drudgery, but it falls to women. Not more than two in ten who are mothers of families can hope to shift this burden from their backs till they fall into the grave. But a little of the self-denial they practice so willingly for husband and children; a little wise self-consideration and self-appreciation; above all, a resolute determination to prefer always the higher to the lower good, will give them the time to get a glimpse of the world of literature and art, of thought and beauty. Given these conditions, there is scarcely a neighborhood in which the housewives can not secure for themselves the delight and refreshment found by the seven women whom I have described.

ELIZABETH CUMINGS.

## ABOUT BOYS.

"I WONDER if she knows about boys?" I heard one of my little sons say to the other a few days since, after I had informed them of an expected visit from a lady friend.

"No; she'll think boys are no account. Most women do, only mamma," was the reply.

"Only mamma! Why, boys are the light of the world!" I exclaim, as the two pairs of sturdy little arms close around me, and essay to bear me bodily where they will.

The query, Do we fully appreciate and understand boys? occurs to me. There is, perhaps, an angelic sweetness in little

girls that renders them more lovable, at any rate nine out of every ten boys imagine this is the case.

Boys, though frequently the embodiment of activity and willfulness, are generous, affectionate, proud, and sensitive. Especially do they feel an impatience with their own boyhood, and long for the dawn of manhood and recognition. I never saw a boy yet that was thoroughly content and satisfied with the even ripples of childhood; who was never looking beyond them into the further depth where he imagined he could stir the waves at will, that made much of a man. Perhaps as I am not an antique fossil, you may wonder how I know anything of boys—simply because I have always been associated with them. Being the eldest of a family, my brother next me was a boy. The families of my two aunts, the only relations with whom we were closely thrown, consisted solely of boys; the one numbering nine, and the other five. When I married it was to a loving bunch of nobility who had just escaped boyhood, and our children came, of course, to be boys. I have often wished myself a boy, because it is rather uncomfortable to be an oddling, and because, in early life, I conceived an idea, which has never altogether left me, that man had a broader and more untrammeled sphere of usefulness than woman.

Boys require constant employment, scarcely constant labor, but continual occupation. Gymnastics and athletic sports induce muscular development; collecting birds' eggs, fishing, frogging, and trapping are engaging pastime, though the amusement is rather one-sided. Quiet fireside games for evenings are pleasant, but these diversions, unless varied and attended by well-directed labor and learning, fail to produce the results we need. There must be duties, incentives, training. It is for the parent to provide these.

There is no wealth we can leave a child at all to be compared with a well-set moral character. Attain it, if possible, by a thorough mental and physical development, but remember first and continually, the morality.

We frequently make our manifold business engagements an apology for the neglect of the moral and spiritual culture of our offspring. It is not enough that we clothe, feed, and send them to school. In each little body there is a soul and a budding intellect. The body is but the house. It is of primary importance that the house be kept in order, but our chief care should ever be the inmate.

Boys meet more temptations than girls. They are shielded less tenderly from the rough edges of humanity, and need continually the protective armor of affection. The school hours are not always tranquillizing and improving; the amusements are not always elevating; even the healthful labor with which we supply them does not always tend to their highest good. They need a depth of social intercourse with expanding minds, an assurance in their ability to become pure and noble men.

There is mutual joy and benefit in the familiarity of parents and children. We can frequently descend with pleasure to a boyish level. I have seen mothers sledding, skating, racing, playing, and curiosity-hunting with their little boys, and I believe they were quite as intelligent and womanly as others who devoted their leisure to fine needlework, art, and novels. I know the boys were better off than those who are turned out early to gather company and grow manly for themselves.

Good principles and habits should be grafted on the young twig. Leave no room with your boy for the success of vice, of deceit, of rum, of tobacco, and profanity. If you wrap the graft with prayers, and light it with example, ten to one it will grow to the gladfulness of pure and noble manhood. In order that we may have grand and useful men we must be ever awake to the interests of our boys; giving them affection, sympathy, incentives to labor, leisure, and education with a wise and liberal hand. To us they are a varied and wondrous study, the illumination and music of daily life, the uprising images of a living God.

MRS. S. L. O.

## THE YOUNG FOLKS OF CHERRY AVENUE.

### CHAPTER III.

AT SCHOOL.

IT was about half-past eight the following morning when Edith, who was conning her lesson in the "First Book of History" by the sitting-room window, cried out: "There's Lizzie Payton going to school; I must get ready. Paulie, won't you run out and ask her to wait a moment for me?"

"Yessy," answered the little girl, dropping a small dust-pan and baby brush with which she was hard at work collecting the few bits of litter lying on the floor. Out she ran, and called to Lizzie, who stopped and asked:

"What is it, Paulie?"

"Edie wants you to please wait for her a minute."

"I will, Paulie; but tell her not to make the minute too many."

"Yes," and back the obliging little one ran to her work.

Edith meanwhile had rushed up-stairs to get ready. Evidently she had forgotten her hasty threat of the day before, for when she came down with her "seaside" in one hand and her satchel in the other, she addressed Lizzie in her off-hand way as if nothing had happened between them.

"Aren't you early, Lizzie?"

"Not very; it was nearly half-past eight by our clock when I left home."

"Got all your lessons?"

"All but one example."

"I've got all mine. Two were awful hard ones."

"Edie, Edie!" shouted Tal from the front door, "come right in, mamma wants you."

"There, I suppose I must go back, because I forgot to go to mamma before I came out. She always wants to see me before I go."

"Well, I'll walk on slowly, so you can catch up," said Lizzie.

"What *do* you want, mamma?" asked Edith, bustling into the kitchen where Mrs. Manley was preparing the work of the day.

"Sit down there, my child, and be a little quiet," replied the lady.

"Oh, Lizzie is waiting for me, and it's late too."

"Not so late that Edith can not respect her mamma's wishes."

"Well, I know I forgot to come in and tell you that I was ready for school, because Lizzie was out there."

"You may go and tell Lizzie that she need not wait."

"Oh, she said she'd go on slowly till I caught up to her. I don't see why you must make me come in when I'm all ready."

"Will my little daughter be kind enough to go to the sitting-room and look in the glass, and see if she is quite ready?"

Edith's hands instinctively flew to her neck.

"There, I'm sure I didn't mean to forget my collar. It's a great nuisance anyway; it takes so long to put it on."

"And my girl's hands, too, are not as tidy as they should be. Did she forget to wash them?"

Edith looked at them and reddened with a sense of shame; for although inclined to neglect her face, she bestowed some care upon her hands, which were very well shaped.

"Now, run up and wash your hands quickly, and bring down your collar and I will pin it for you," continued Mrs. Manley.

Edith flew up-stairs, and three minutes after re-appeared in the kitchen with the collar.

"Now, my dear child," said her mother gently as she put on that article, "you see the result of haste. I'm sure you wish to look as neatly as other girls, and you can scarcely tell yourself how you look."

"I like to look nicely as well as other girls," half grumbled Edith; "but it takes so much time to comb and wash and dress. And then I haven't as nice clothes as most of them; so I can't look as well anyway."

"You certainly have as good clothing as most of those who attend Miss Clem's, Edith; but even if you did not, you would have no excuse for being careless and disorderly. Now, dear, it is time you were on the way. Good-bye."

With a kiss, Edith was released, and dashed out of the house, but on reaching the street Lizzie was not to be seen.

The distance was not great to the modest building in which the two Misses Clem conducted their school; but when Edith arrived at the door she found that the roll was just being called, and she barely had time to take her seat before her name was called.

The whole of the second floor of the house occupied by the Clem family was devoted to the school. This floor was divided by large sliding doors into two rooms, about eighteen feet square each. In one room the boys were arranged, in the other the girls, as the Misses Clem were not yet convinced of the utility of mixing them. There were times, however, when the large doors were rolled back and the two sections made into one. At the opening of school the roll was called from a general list by the elder of the sisters, a song was sung in which all joined, and then some remarks were usually made by one or the other on a matter of interest to the pupils. The spelling and reading exercises were a common feature, in which all could take part, although the younger children were not required to stumble through the big words. Friday in every other week was composition and review-day, and then the division doors were rolled back, and while the examination questions were put to the scholars according to their grades of study, all were expected to be attentive. These review-days were much enjoyed by the children, on account of the reading of the compositions of the elder ones, and because they were usually dismissed an hour or so earlier than usual.

After the roll this morning, teachers and scholars joined in singing the lively verses which begin with—

"Let us gather up the sunbeams
Lying all around our path;
Let us keep the wheat and roses,
Casting out the thorns and chaff;
Let us find our sweetest comfort
In the blessings of to-day,
With a patient hand removing
All the briers from the way."

They rolled out the measures with a hearty force, and when the hymn had been finished, Miss Julia Clem, who presided in the front room over the girls, said, smilingly:

"Most of you sing as if you not only knew the words by heart, but felt them too in your heart. Some of the boys are a little noisy in their singing; perhaps they think that the more noise they make the more music there is. But I'm half inclined to believe that they are a little mischievous in roaring so loudly. A few of the girls think, perhaps, that the best music is very low and soft, because they sing so feebly that they are not heard at all. While the boys are roaring like lions, those girls are whining like very young kittens.

"To-morrow will be—what?"

"Friday—Reviews and Compositions," replied several voices.

"Yes. I hope all who have to read compositions will be ready, and every one will be prepared to give a good account of what has been studied during the past two weeks, so that we all can get out early. Sister Grace, have you anything you wish to say?"

"Nothing specially now," replied the mistress of the back room.

"Then the sections may come to order for the business of the day," said Miss Julia, in a tone of authority, taking her seat at the head of the room, while Miss Grace quietly walked to her own desk at the head of the other room. Then, at a stroke of Miss Julia's bell, two of the larger boys sprang to the sliding-doors,

and bringing them together, the two sections were prepared for work.

Miss Grace had but eighteen in her department, yet she thought they gave her work enough, and was disposed to look with pity upon teachers in those large schools where fifty, sixty, and even more children are given to the care of one brain and one pair of hands. Well she might pity such overburdened teachers, and the less than half-cared-for children should be pitied as much.

Time wore on; lessons in arithmetic, geography, history, and language had been recited, and all were now engaged upon their writing exercise, when suddenly a rather sharp whistle resounded through the room of the boys. Miss Grace turned quickly toward that quarter whence the sound proceeded, and the offender was easily detected by the glances of the boys near him and by his own blushing face. It was Johnny Drake.

"I didn't mean to; indeed I didn't, Miss Clem."

"How was it, John, that you did it?" asked his teacher kindly.

"I was just writin' along when my pen stuck into the paper and spurted the ink, so I whistled 'fore I thought."

"You whistled because you were surprised by the accident, then?"

"Yes, ma'am."

"Well, try not to let it occur again. Keep your lips closed while you are writing, and think of what you are doing. What is it, Talbot?" she asked, in response to the raised hand of that young scion of the Manleys.

"I was thinkin', Miss Clem, of what I've heard people say, that nothing is quicker than thought. Johnny whistled before he thought. So isn't whistling quicker than thought?"

The older boys laughed, and the lady herself smiled as she detected the sly humor of the pretended inquiry. Answering him, however, she said:

"Scarcely; for whistling is the result of a kind of training which the lips have received, and that training, you know, must be thought upon before it could be put into practice. Johnny, I suppose, is accustomed to whistle a good deal. Is he not, boys?"

"Yes," replied two or three, who were his daily playmates.

"And I should not wonder if he is in the habit of expressing his feelings often by whistling. When he's pleased, he may make a long kind of a shrill note, and when he's surprised he may make a stronger one, running a little way down the scale, as he did to-day."

The boys laughed at this, and Johnny, who had recovered his composure, said:

"Please, ma'am, that's the way I often do, but I didn't mean to do it in school."

"Well, my boy," rejoined the teacher, "I believe that you did not, and I will not mark it against your deportment; but be careful not to repeat it, as such things disturb the whole school almost as much as conduct which is intentionally wrong. I will give you a fresh pen if you will step to my desk."

Twelve o'clock rang out from the large clock in the front section, and soon afterward the doors were rolled back, and at the signals of the teachers, each in her room, the boys and girls filed into the vestibule, where hats, caps, and bonnets were kept, and as one after another secured their head-gear, they hurried out of the building. The usual hour's intermission for lunch or dinner was given; and as nearly all the scholars lived in the neighborhood, it was the custom of those who wished to go home for the noon-time meal to do so.

"Hey, Tal," shouted Alfred Williams, a boy about a year older than Tal, "Jim says you came very near being bitten by that dog yesterday. How'd you feel when you dropped kerslosh upon him? Kind o' scarey, didn't you?"

"Yes, for a moment; but I fell so quick, and the dog raced out so soon, that I didn't have much time to think about being frightened."

"Hey, girls!" called Alfred to Sophie (Lizzie and Edith were walking together a little distance in advance of the two boys), don't you think Tal ought to get

up a composition about the fight he had with Mr. Beck's dog yesterday?"

"Yes, certainly," answered Milly. "It would be very interesting, and then it might be copied in the *Sentinel*, and everybody in town would know how smart a boy we have in the avenue."

"Suppose you write about it, Milly," said Tal, "you write such nice compositions?"

"If she did," said Alfred in an undertone to his companion, "she'd just make all the fun of you she could."

anything to do, begin it early, and then you'll be likely to finish in time and do it well."

"I just *hate* writing compositions," said Milly; "and I don't know why I must be made to write them. Miss Clem seems to think more of them than almost anything else, and she knows that I dislike them so much."

"Why," said Edith, "I think it's real fun to hear them; but I don't much like to write them myself because they take up so much time."

Sophie and Edith's Little Race.

"What of it? I don't care; I could laugh with the rest."

"What are you going to write about anyhow, Tal?" asked Sophie.

"Oh, I've written my composition. Haven't you?"

"It isn't finished quite."

"Pshaw!" exclaimed Edith, "he commenced his two weeks ago, and every day he's been at it."

"Well, I'm sure that's the way to do," rejoined Sophie. "Papa says if you have

"You and Sophie have grown brothers or sisters who can help you out," complained Milly; "my father and mother are always too busy to give me any help. Papa is out so much at night, and mamma has so much company, that I have to do it all myself."

"Don't they give you any hints at all?' asked Sophie.

"Oh, yes; they'll talk about this or that subject sometimes when I ask them, but they won't write anything out for me."

"Why, that wouldn't be fair—would it, Alf?" cried Tal. "If I get a good subject, that's all I want; and Miss Grace and everybody is ready to give a fellow a hint on that."

"You ought to see him, girls, when he goes to work," laughed Edith. "He gets the Dictionary and the Cyclopedia and goes up into the garret by himself, and then he lies right down on the floor with his slate and pencil, and stays there ever so long sometimes."

"Well, I'm sure he writes real good compositions for a boy," said Sophie.

"Gets a hundred every time, while I get only eighty or eighty-five for mine," remarked Alfred.

"I think that it's wrong for Miss Clem to mark us when she knows some can write so much better that others naturally," protested Milly.

"Why, Milly, you know that both Miss Julia and Miss Grace are very particular about that," rejoined Tal. "I heard them talking about it myself only a little while ago, and Miss Grace said that it was only fair to mark the scholars 'cording to their—'bil—ability; and they knew that some of the larger girls and boys complained because they were marked low, but it was their own fault—they didn't try hard enough."

"Well, you needn't preach so much, Tal Manley," Milly responded. "I think I know as much as you about what is right."

"I don't say you do not, Milly. Heigho! Alf, now for a scrub-race."

Away the boys dashed down the short hill, at the foot of which the Manley home stood. Tal turned short and entered the court-yard, while Alfred continued his run toward his own home.

"Let's see who'll get down to the poplar-tree first," cried Sophie, jumping forward in emulation of the boys' activity.

"I'm willing," replied Edith, taking off her bonnet.

"Girls, I would not be so unladylike," protested Milly, with a disdainful toss of her head. "I think it's really shocking for big girls to run races like rude boys."

"I don't care," returned Edith; "it's great fun, and I'm going to do it as long as ever I can. My papa says that it is good for our health to run and exercise in the open air, and he sometimes races with Tal and me in the garden."

"Well, if you want to grow up a great rough tom-boy, you may."

"I aint at all afraid of being a tom-boy. Come, Sophie, let's start."

Milly's scolding was lost on Sophie as well as on Edith, and the next moment the two girls were dashing along at their best pace, and soon reached the tree, Sophie being a little ahead.

"Go—down—to the mill—this—afternoon—Sophie?" asked Edith, as she turned toward her father's gate.

"Guess—so. Perhaps Milly'd like to go to."

"Oh, she'd be afraid of getting flour on her dress or falling over the logs," rejoined Edith, as she tripped up the graveled walk.

Milly came primly along humming the "Carrie Waltz" she was practicing on as a music-lesson, but the two racers were in their homes and at the table before she entered her father's elegant cottage, which stood on the left of the avenue, a hundred yards or so beyond Mr. Deane's.

When the children returned to school for the afternoon session, they found a stranger in conversation with their teachers. He was a tall, neatly-dressed gentleman, slightly gray, but his active manner, fresh complexion, and smooth skin, declared him by no means old. After the bell had summoned all to order, Miss Julia Clem said:

"I take pleasure in introducing to you Dr. Welling, who has come to our town for the purpose of giving some lectures, which I am quite sure will be as interesting to young people as to old. He will tell you what he talks about."

Bowing gracefully to the teacher, Dr. Welling then said:

"Yes, young ladies and young gentlemen, I have come to your pretty town to

give some lectures on a topic which should interest everybody, whether old or young, because it has to do with the life of everybody. The topic is Mind and Brain. You know that the brain lies up here in the head, and that it is by means of the brain we see and hear and think and speak. You all know that, don't you?"

"Yes, yes," responded from all parts of the room.

"Well, I am one of those who teach that one part of the brain has to do with one part of the mind, and another part of the brain has to do with another and different part of the mind, and so on. For instance, I believe that this part of the brain (touching a temple) has to do with making things—construction—and that a man could not be a good carpenter or blacksmith if this part were not well developed. If this part of the brain (touching the middle of his forehead) be large, there is a good memory; and if this part (touching the top of his head) be not well developed a man will be disrespectful to others and not care much about going to church. Now, let me illustrate the principles of the science which explains this wonderful structure of the brain by some of your heads. Don't be frightened (for on hearing this some of the younger children had drawn back a little), I don't mean to take off your heads, but only to make, if I can, my meaning clearer. That boy with the dark hair and blue necktie, sitting near the partition, is fond of horses and dogs. See how his head in the back part runs out to a point! When out of school, I'll venture to say, if his father keep a horse or a dog at home, he can scarcely be contented away from him."

The children generally smiled.

"Am I right?" asked the gentleman.

"Quite," replied Miss Grace. "Johnny has brought a dog to school two or three times, and it was difficult for me to convince him that he should not do so."

"That little girl with the pink cheeks and golden ringlets at the third desk from the front, is a very active and sensitive child; she is easily frightened, but most affectionate and obedient."

"One of the sweetest children I ever knew," remarked Miss Julia Clem.

A murmur of approval went through the school-rooms, one voice being heard distinctly to say, "That's so."

"If the boy who said 'That's so' will stand up, I'll say something about him," went on Dr. Welling.

Tal Manley rose from his desk.

"That young gentleman is a great lover of fun, and can make it. He is a good scholar too, very ambitious to get up head, and likes praise very much. He ought to learn to draw, because he would make a fine artist."

"Certainly true to the life, sir," said Tal's teacher.

"Now, the great thing about this telling of character is the fact that it is a science, something that can be studied just as you study geography, arithmetic, and spelling; and you, young as you are, can learn it and make it of great use to yourselves and your friends. This science is usually called Phrenology. Some of you may have heard your parents speak of it. Now, I am going to give three or four lectures, in which I shall describe what this science is, and how it is applied, and how it may be learned. I have engaged Brown's Hall for these lectures, and shall give one on Saturday afternoon at four o'clock, and one on Tuesday afternoon at half-past four. Here are tickets and some circulars, which will be distributed by your teachers, so that all who wish to come to the lectures can do so."

Courteously thanking the teachers for permitting him to speak, Dr. Welling laid the package of tickets and circulars upon a chair, and then, with a polite bow to all, he departed. CLARE.

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THE Indian School at Carlisle, Pa., is getting along finely. The total number of pupils is 158. Commissioner Hayt, who visited the institution lately, expressed great satisfaction with the pupils, with their cleanliness, food, behavior, and general appearance.

## THE CARE OF THE TEETH.

A GREAT deal of the pain and suffering which we endure is self-inflicted, or, to say the least, avoidable. Not the least of our sufferings comes from decayed teeth and the pain which they cause; in other words, from toothache. A man suffering from the toothache does not get much sympathy either. Nor does he deserve sympathy, because this is a species of suffering which can be avoided. We do not pity such a man, except so far as we may pity his ignorance; and ignorance is always pitiable, especially when it results not so much from the neglect of the individual in failing to inform himself, as from the neglect of others who should have been his instructors. In our youth we suffered a great deal from toothache. And this was because those whose duty it was to teach us the proper care of the teeth, failed in the performance of that duty. And this is a species of information which it is not expected that a child can have, unless it has been imparted to him by others older than himself. As we grew in years, however, we, in time, found out for ourself how to take care of our teeth. Putting this knowledge into practice, the result is that we have not had the toothache for thirty years; and what is more to the purpose, we do not expect to ever have it again as long as we live. We do not mean by what we have just said that in the period mentioned we have not lost any of our teeth, for we have; the knowledge of how best to preserve them did not come to us quite soon enough to prevent that, for caries had already advanced too far in some of them to be permanently arrested. But we mean that during the last thirty years we have not suffered from toothache. Whenever a tooth has come to that condition where it is no longer useful, we and it part company. We do not long leave such a tooth where it is liable, at any time, to become a cause of offense. Our own experience in this matter, therefore, inclines us to say that no one need suffer from toothache if he or she will but take the proper measures to avoid it.

In order to a proper understanding of the subject, we might pause a little to consider what are the causes which lead to caries of the teeth, a disease which seems, in modern times, to have become well-nigh universal; and we might inquire in this connection, Why is it that of all animated creation man alone should have decayed teeth? Look at your pet spaniel lying on the rug at your feet. Open his mouth and examine his teeth, white and shining like ivory, and perfectly clean; not a particle of tartar nor of corrosion observable anywhere, and his gums firm and hard, and of a good, healthy color. He will never have the toothache, because his teeth will never

decay as long as he is a live dog. The answer to this question, we take it, is this: Animals of the brute creation live mostly in a state of nature, eating the food appropriate to them; while man, at least civilized man, has widely departed therefrom. Savage nations, who live nearer to nature than we do, have but little need of the services of the dentist. The structure of man's teeth, as well as that of his entire organism, as we are told by the most eminent naturalists, show him to be a frugivorous and graminivorous animal; and had man always lived upon fruits and grains, with other things of a vegetable nature, the probability is that he would have been but little troubled with decaying teeth, and the suffering attendant thereupon. But we can not enter at length upon this phase of the subject here, as to do so would open up the whole question of dietetics, which would be foreign to our purpose. We can only state in this place a few general facts and principles which seem to us so obvious as to need no proof.

But it is not alone that man has erred as between a vegetable diet and one of which flesh-meat forms a part. This is one of the least of his transgressions. The bread that we eat, made from fine flour, has a bad effect. The teeth, with the exception of the enamel, are composed chiefly of lime, phosphate of lime. The phosphates, naturally found in the grain of which our bread is usually made, are almost wholly removed in the process of bolting the meal into which the grain is ground. Hence the teeth, as also the entire bony system, suffer. Then again, the hot soda biscuits that we eat, the cakes and confectionery. Not that any harm results from eating things that are sweet, for sugar itself is not injurious to the teeth, but the crunching of hard candies is apt to break the enamel. On the other hand, too great a proportion of mushes, and other soft and sloppy food in our ordinary diet, is bad. These things, requiring no mastication, do not afford the teeth a sufficient amount of their proper exercise to keep them in a healthy condition. Dr. Franklin, in his time, thought that this was one frequent cause of decayed teeth. The drinking at our meals of tea and coffee as hot as they can be borne, to be followed, perhaps, within half an hour thereafter with a glass of ice-water, is a bad thing. The alternate sudden expansion and contraction under the influence of heat and cold which results from these practices can not but be hurtful. Many of the things that we ordinarily eat and drink are hurtful to the teeth not only by their direct action upon them, but they injure them indirectly by disordering the stomach, thereby producing acidity and eructations of acrid gases. Besides that, when the general health suffers from any cause, the teeth are affected more or less in common with the other organs of the body. The same causes, when applied, will produce the same effects on the lower animals; for, when milch cows are shut up in a stable, without exercise, and fed on swill, sometimes hot from the distillery, their teeth decay just the same as a man's.

Americans, too, are said to have worse teeth than the people of any other nation. That is simply because their dietetic, and some of their other, habits are worse than those of other nations. American dentists, however, are said to be the best in the world. This simply results from the fact that here gentlemen of that profession find the widest field for the practice of their art.

But after avoiding as much as possible the evil practices here alluded to, we still exist under conditions which are more or less artificial. This seems to be a necessity of the state of civilization in which we live. To preserve our teeth, therefore, from decay, will involve the adoption of certain measures which, in the case of the lower animals which lead more natural lives, are wholly unnecessary; but which become necessary, indeed absolutely so, to us whose lives are to a degree artificial. And unless the habits of the individual are outrageously bad, his teeth can be preserved as long as life itself, and all suffering from decay

avoided, if these measures be adopted sufficiently early, and their practice persistently adhered to afterward.

In order, then, to preserve the teeth from decay, tartar must not be allowed to accumulate on them. In other words, the teeth must be kept clean, *perfectly clean*. As long as this is done they will not be likely to decay; and this is the whole secret of the matter. In order to prevent accumulation of tartar, and to keep the teeth clean, you must have a good brush, and then you must use it properly. This is a prime necessity, a *sine qua non*, without which nothing can be done. We have used a tooth-brush from an early period of our life. The result is, that though past middle age, we still have most of our teeth. We might have had them all yet, but we did not begin to use a brush quite soon enough. Our two brothers never made use of a brush. The consequence is, that though younger men than ourself, they have both lost their teeth over a score of years ago; and they had the advantage of having had originally better teeth than ours were, and better health generally. Our mother-in-law was one of a family of four girls. She had a tooth-brush and used it; the others had not. At sixty-five years of age she has her teeth, and her sisters are toothless. But why multiply illustrations? These are but two out of the many instances of like nature that have fallen under our observation. In short, the difference between a tooth-brush and no tooth-brush is, in many cases, we believe in most, just the difference between teeth and no teeth.

The first thing, then, to be done is to provide yourself with a good brush. The best tooth-brushes are of English manufacture, though made of Russia bristles, and may be bought for fifty cents each. Select one with moderately stiff bristles. Having secured a brush to your satisfaction; how often, and in what way, must it be used? Some advise the use of the brush immediately after each meal, in order to remove any particles of food that may remain around or between the teeth. Now if we have dined satisfactorily, the impression made upon the gustatory nerves by sapid substances is a pleasant one; and this pleasant impression remains for some time afterward. But to introduce such an instrument as a tooth-brush into the mouth upon rising from the table would destroy it at once. Hence we have a repugnance toward doing anything of the kind. Besides this, it is wholly unnecessary. Any particles of food remaining between or around the teeth after a meal should be removed with a quill toothpick. Once daily is often enough to clean the teeth, if the operation be properly performed. And the best time to do it is in the morning, soon after rising, when you wash your face and make your toilet for the day. This is at once the most convenient time and the time when the cleansing of the mouth is the most needful; because the accumulation of whatever is most destructive of the teeth takes place more rapidly while we are asleep than during our waking hours. We always feel most disposed to wash out our mouth in the morning upon rising; in fact, we can not properly enjoy our breakfast until we have done so.

Many persons, in brushing their teeth —we will not say cleaning them—close the jaws and open the lips, then proceed to carry the brush back and forth, from side to side of the mouth, across the teeth. In this way only the more prominent parts of the teeth come into contact with the brush, and these scarcely need brushing; for, on account of their more exposed situation, they are usually kept clean enough by the friction of the food in mastication; while the cracks and crevices, and the least prominent parts, where accumulations are the most likely to exist, and which, therefore, need the brush the most, escape it entirely. Many, too, brush only the outside of their teeth, whereas it is the inside that has the most need of brushing. The way we do is this: Taking the brush in hand, and standing with open lips before a looking-glass, we examine all the de-

pressions between the teeth, searching out all the cracks and crannies, and the more hidden localities, both inside and out; and where any evidence of deposit is discovered, "go for it," applying the brush right to the spot. The more exposed parts of the teeth receive no particular attention except what they get incidentally—these being usually kept pretty clean by the friction of mastication, as already stated. It is impossible, however, to avoid brushing them some, when the instrument is applied in the manner indicated, and in this way they get all the cleaning they need. For cleaning the inside of the upper and lower teeth we advise the use of a brush which consists of a rounded tuft of bristles on a short, straight handle, and costing twenty-five cents. This fits the locality exactly. When your best brush is taken for this particular purpose, only the point of it comes into use, and this will be worn out while the rest of it is yet good, and you have to throw it away half worn out, and get a new one. If, then, you can employ an instrument better adapted to the purpose, at one-half the cost of your best brush, meanwhile saving the latter to that extent, of course it is a matter of economy to do so.

This is the proper way to clean the teeth, and it does not take long either. Two minutes does the business. Our dentist, upon one occasion examining our teeth, and discovering nowhere any evidence of tartaric or other deposit, told us that we brushed our teeth too much! This simply shows how little time and trouble it takes to do a thing properly, as against the time that is lost, and the energy wasted, when done otherwise.

In detailing the method of cleaning the teeth as we have now done, the use of water is presupposed, and water alone. But some persons find that, with their best efforts, they can not keep their teeth perfectly clean by the use of brush and water alone. We, too, have experienced the same difficulty. While entering upon the subject of tooth-powders, washes, and dentifrices generally, it behooves us to speak with caution, for we feel that we are treading upon dangerous ground. So many of these things sold in the shops under one or the other of these names, whiten the teeth only to destroy them in the end, owing to the presence of some free acid in their composition, that we almost feel that the best advice we can give our readers in relation to them is to avoid them altogether.

Some persons tell us that they get their teeth well cleaned once a year; that is, in strawberry-time. This, to our mind, demonstrates two things very conclusively. The one is, that if man lived upon the food nature intended he should eat, the same as the lower animals do, his teeth would be kept as clean, and would resist decay as well as theirs. The other is, that a little acid of the right kind is of advantage in cleaning the teeth; and strawberries and other acid and sub-acid fruits seem to contain the right kind of it, in just the right amount, to perfectly clean the teeth and beautify them without doing them injury. Where it is necessary, then, to use a tooth-powder or dentifrice of some kind, use only that of which the constituents are known to you; or, at least, one made by some dentist whom you have confidence in, and whom you know to be a reliable man. Some use charcoal as a dentifrice, and only this. We have sometimes used it ourselves. If from some circumstance, as in traveling or the like, the proper cleaning of our teeth has been for some days neglected, or imperfectly done, and the enemy has been allowed to get ahead of us, we have found nothing better to restore things to their pristine condition than charcoal. It is also, on account of its antiseptic properties, good to use where decay already exists, sweetening the breath where it has become foul from this cause. The charcoal should be ground to an impalpable powder, such as you buy in the drug-stores. But even then it is somewhat gritty, and if used often, has a tendency to cut the gums loose from the teeth. It should, therefore, be used very sparingly, and only at long intervals. Be-

ing a black, smutty substance as it is, we dislike to have it about our washstand or toilet-table. In applying powder of any kind to the teeth, a little should be taken on the point of the brush while it is dry, and the bristles stiff, and applied to the teeth in the manner indicated above for the application of the brush alone. If the brush be first wetted, and the bristles thus made soft, the application of the powder will not be so effective. The bristles will be softened all too soon by the action of the saliva, perhaps before the operation is concluded.

A little fine soap is a good thing to use on the teeth occasionally, say once a week. When a small portion of tartar taken from the teeth is put under a microscope, it is found to contain many of the bodies of a certain animalcule. The alkali of the soap will destroy these. A soda soap should be used, as a soap made with potash will be found to be much too caustic, and will be likely to take the skin off the inside of the mouth. There are numerous tooth-soaps in the market, sold at high prices for the quantity given. It is not expensive, however, for it takes so little to do. But the best soap to use on the teeth is pure white castile soap, made of olive oil and soda; uncolored and unperfumed. This you can buy for twenty-five cents a pound; and a pound, or even half a pound, of it will last you a lifetime, if used for this purpose alone. This soap is also the best that can be used for all other purposes of the toilet except for that of shaving.

There are some persons whose teeth, notwithstanding all the care and attention they are able to bestow upon them, will, in spite of their best efforts, still decay. Where this is the case, it must result from some congenital defect inherent in their structure. Where any such defect exists, caries is apt to set in at an early, sometimes at a very early period. Since we commenced the preparation of this paper, a gentleman of our acquaintance has told us that he had just been having the teeth of his little boy, four years old, filled with gold. These were of course his first set, the deciduous or milk teeth. In such a case the only thing to be done is to employ a dentist.

Now, to those of you who have never given any care to the preservation of your teeth, and who have most likely a mouth full of unclean and decayed or decaying teeth, and who have suffered, perhaps still suffer, untold miseries from the toothache, we say, this state of things should not be allowed to continue. And it need not continue; you need never again have the toothache after to-day if you will but do as we tell you. If, then, by the reading of this article you may be induced to try the experiment, we will tell you how to proceed.

First and foremost, go to a good dentist and have him examine your teeth, and have all the aching and badly decayed ones, all that are too far gone to save by filling or any other means, extracted at once, right on the spot. This operation, tooth-pulling we mean, is one the severity of which sometimes more than meets the expectation of the individual. But, luckily, all surgical operations are now rendered painless by the use of anæsthetics. Chloroform has been used in extracting teeth, but its administration is not unattended with danger. We have, however, in nitrous oxide an anæsthetic which answers admirably the purpose, and one that is entirely safe. Take nitrous oxide, then, and have all these sources of pain and trouble removed, and be done with them. We would not have an old snag, liable to ache at any time, in our mouth for a small fortune. A man can not enjoy life with the toothache if he have a million of dollars. Return to your dentist after the lapse of a few days; that is, after all bleeding from the gums, and all soreness of the mouth has departed, and have the remaining teeth thoroughly cleaned, with a view to the filling of all those that are slightly decayed and still worth an effort to save. Until this is done, you can not tell how many of your teeth may want filling; covered over as they have been by tartar, it is only upon its removal that

all the cavities will be brought into view. Have now all cavities in turn well cleaned out, every particle of dead bone removed, and then filled with gold, where it is possible to use that metal, for it is a long ways superior to all others for this purpose, as it is superior to all other metals in exchangeable value. A gold filling, however, requires much pressure to pack it properly, hence none but a tooth tolerably sound will be able to resist this. Where a tooth is much decayed, perhaps, as is frequently the case, a mere shell remaining, some other kind of filling must be employed. The dentists have a granular metallic substance of which they make a kind of semi-fluid preparation, and fill into large cavities without pressure, merely laying it in, as it were. In about an hour's time it becomes very hard. The burnisher is then applied, polishing it off. When the operation is concluded, the filling presents a smooth, white, shining surface. This is called amalgam filling. In all back teeth too much decayed to be filled with gold, in all molars presenting a large grinding surface, this is the filling to use. It becomes in a short time as hard as adamant, and capable of resisting any amount of force applied to it in the trituration of the food; and it will never wear out. But if the tooth to be filled be a front tooth, an incisor, or an eye-tooth, and the filling, as is generally the case, is to be introduced at the side of the tooth, where it will not be required to sustain much direct pressure in eating, cement should be used. It is nearly the color of the teeth, and will not produce discoloration, even where a large cavity has to be filled, as the amalgam filling might do.

Having now gotten all of your worst decayed teeth removed, and the rest of them put in such condition as will be most likely to prevent any further decay, and having gotten your teeth well cleaned, you ought certainly to be able to keep them clean, especially if the directions given in this paper are carefully followed. But if at any time signs of caries should manifest themselves, go at once to your dentist and have the matter attended to. It is a good plan to visit your dentist once in a while at any rate, and present your mouth for his examination. With his instruments, and his little mirrors, exposing to view the inside as well as the outside of the teeth, and the back as well as the front, he may oftentimes be able to detect incipient caries, and even to discover cavities, where, without these aids, they would escape your own scrutiny.

In conclusion, then, we say to you and to all: Live as close to nature as you can in the matter of food and diet. This will be better for your teeth not only, but also for your general health. Do not take your tea and coffee scalding hot; better not any; and do not make of your jaws a crusher for rock-candy, nor a nut-cracker for shell-barks.

JAMES COULTER LAYARD.

## COLD FEET IN BED.

WHILE winter is at hand, and with it the many attendant discomforts and annoyances of a chilly, frosty atmosphere, it is becoming to fortify ourselves against the influences and effects of cold. It is better to be so clothed as to feel a little too warm, rather than not warm enough. One of the common obstacles to personal comfort is cold feet, particularly cold feet at night. When abed one feels that he ought to be comfortable. We may succeed, perhaps, during the day in maintaining a passable degree of caloric in our extremities, but at night we may groan in sleepless torture until the small hours with icy feet. A contributor to the *British Medical Journal* gives a few simple suggestions on this seasonable topic, which we copy here for the benefit of our cold-footed readers:

"The association betwixt cold feet and sleeplessness is much closer than is com-

monly imagined. Persons with cold feet rarely sleep well, especially women. Yet, the number of persons so troubled is very considerable. We now know that, if the blood-supply of the brain be kept up, sleep is impossible. An old theologian, when weary and sleepy with much writing, found that he could keep his brain active by immersing his feet in cold water: the cold drove the blood from the feet to the head. Now, what this old gentleman accomplished by design, is secured for many persons much against their will. Cold feet are the bane of many women. Light boots keep up a bloodless condition of the feet in the day, and in many women there is no subsequent dilatation of the blood-vessels when the boots are taken off. These women come in from a walk, and put their feet to the fire to warm—the most effective plan of cultivating chilblains. At night, they put their feet to the fire, and have a hot bottle in bed. But it is all of no use; their feet still remain cold. How to get their feet warm is the great question of life with them—in cold weather. The effective plan is not very attractive at first sight to many minds. It consists in first driving the blood-vessels into firm contraction, after which secondary dilatation follows. See the snowballer's hands! The first contact with the snow makes the hands terribly cold; for the small arteries are driven thereby into firm contraction, and the nerve-endings of the finger tips feel the low temperature very keenly. But, as the snowballer perseveres, his hands commence to glow; the blood-vessels have become secondarily dilated, and the rush of warm arterial blood is felt agreeably by the peripheral nerve-endings. This is the plan to adopt with cold feet. They should be dipped in cold water for a brief period; often just to immerse them, and no more, is sufficient; and then they should be rubbed with a pair of hair flesh-gloves, or a rough Turkish towel, till they glow, immediately before getting into bed. After this a hot-water bottle will be successful enough in maintaining the temperature of the feet, though without this preliminary it is impotent to do so. Disagreeable as the plan at first sight may appear, it is efficient; and those who have once fairly tried it continue it, and find that they have put an end to their bad nights and cold feet. Pills, potions, lozenges, "night-caps," all narcotics, fail to enable the sufferer to woo sleep successfully; get rid of the cold feet, and then sleep will come of itself.

## A MISTAKING CRITIC.

EDITOR PHRENOLOGICAL JOURNAL: My attention has just been called to an article in your December number under the heading "Unwarrantable Positions," in which an evident attempt is made to place both myself and journal in an incorrect light. I say the attempt has been made, though I do not wish to question the motives of the writer, but it must be quite evident to discerning minds that the writer involves himself in a much greater difficulty than us. I have no desire to enter into a controversy with any one, but deem it wise to make my true position known since it has been so incorrectly stated. I would not think it worth while to do this simply to refute the statements of my critic; but as the article has appeared in your columns, and so has, in a certain sense, the indorsement of your JOURNAL, it is but fair that your readers should hear a word on the other side.

In an article in the *Health Reformer*, now *Good Health*, for April, 1878, I called attention to some of the ultra views held by certain persons, and cited two or three instances which had come under my immediate observation, and which had been the occasion of no little reproach to the cause of hygienic reform. The positions which I referred to and characterized as

fanatical were: 1. That it would be better to let a patient die rather than allow him to take a drop of medicine, even if it were known that the medicine would save the patient's life; and, 2, That the use of palliatives for the relief of pain is never justifiable.

These "very positions," my critic affirms—in order to prove that I am guilty of inconsistency—I have formerly "advocated," having "recently embraced" doctrines which are the reverse. For his information, as well as that of the readers of the PHRENOLOGICAL JOURNAL, I wish to say, (1), I never held the positions referred to, and never advocated them; (2), I have made no change in my medical views since I first had a right to hold views on any medical subject based on an investigation of the same. Longer than my friend has been entitled to append a medical title to his name, I have believed, "advocated," and practiced the very opposite of the positions referred to. I am not a little surprised that any man of intelligence should attempt to stand up in defense of positions so obviously unreasonable and absurd; yet if I understand my critic correctly, this is what he wished to be understood as doing. If my supposition as to his intention is not correct, then there is no occasion for his strictures.

My reason for publishing the article which so aroused the ire of my critic was to correct an evil with the exact nature and extent of which I was quite familiar. I knew, personally, a man who declared that his wife should die rather than be allowed to take a drop of medicine *even if he knew it would cure her*. As the man resided in a section where my journal has many readers, I believed it my duty to warn as many as possible against his influence. The circumstances were very similar in the case of the patient who was starved to death by a man who has since bitterly repented of his folly.

I can scarcely conceive of any reason why the writer of "Unwarrantable Positions" should appear as the champion of ignorant fanatics who have themselves grown wiser and abandoned the folly of their ways, unless it be to gratify some personal pique. Seemingly tired of beating a bag of wind, my critic attempts to erect a giant of straw to fight against by making me say that stimulants and anti-periodics are necessary in malarial fever. I said nothing of the kind. I merely intimated that a stimulus is sometimes needed—without saying anything respecting the nature of the stimulus—and that an anti-periodic may sometimes be useful, without saying when or how. I would use a palliative to relieve pain in an individual suffering from disease in the same way and for essentially the same reason that I would use an anæsthetic in surgery, only when absolutely required—when less harm would be done by it than without it.

Your contributor charges me with calumniating some one, when I did not so much as mention any individual's name, much less charge any person with anything in any degree disreputable. I stated facts with which I was acquainted and which I am prepared to substantiate. It certainly looks very much as though your correspondent was "spoiling" for an opportunity to make a thrust at my journal, and chose the article to which he called attention, as the most promising, as affording a pretense of an apology for so doing. When your contributor charges me with attempting to make the public believe that a starvation diet is a part of the hygienic system of treating disease he certainly does me the grossest injustice. He can have no more interest than I in the promulgation of hygienic truth. I do not believe the true system of treating the sick to be responsible for any of the ultra views of fanatics or extremists, or any of their wild notions, and have never intimated such a thing. The real animus of so unjust an attack, I am utterly at a loss to understand.

I have rightfully definite views respecting the nature of disease and its treatment. In some points I should undoubtedly agree with my critic, probably in most points; but I am not fossilized as

yet, and by daily contact with disease in numerous phases, I hope I am learning something. True science has no affiliation with bigotry, and demands unbiased investigation. If all who call themselves hygienists would cultivate the spirit of true scientific inquiry, we should have far less of hypercritical criticism, and should realize more rapid progress in winning others to the acceptance of true principles.

J. H. KELLOGG.

BATTLE CREEK, MICH.

## A RECIPE OR TWO.

WE find this in an exchange:

"BOSTON BROWN BREAD.

"One heaping coffee-cupful each of Graham flour, rye flour, and Indian meal. Sift all together, and mix thoroughly with two coffee-cupfuls of molasses, two of sweet milk and one of sour, a teaspoonful of salt, and a dessertspoonful of soda."

Three cupfuls of meal to five of fluid, with glucose, caseine, and lactic-acid adulterants thrown in! What a fine, pulpy, sticky mess, and called bread! Shades of bile, colic, and dyspepsia, how you must rejoice in view of such a concoction!

But how would you make *good* brown bread? may be asked, and as the question is very frequently asked by correspondents of the PHRENOLOGICAL JOURNAL, let me say that I have good success in following this rule for Brown and Indian bread. The ingredients necessary may be used in these proportions: Twelve teacups of Graham flour; four teacups of Indian meal; two tablespoonfuls of molasses; half tablespoonful of salt; one-third of a National Yeast Cake. Dissolve the yeast cake, which should be fresh, in tepid water; then stir flour in it until the mixture is about as stiff as paste; let it stand to rise from say five P.M. to eight P.M. Then take all the ingredients and mix them with tepid water until the composition becomes as stiff as can be stirred with a spoon. Put the dough in a suitable pan, cover lightly, and bake it the following morning as soon as the mixture is light. In a hot oven the baking, if only one loaf be made, will require about two hours. If small loaves are kneaded up, the time of baking will be reduced, of course. This rule will suffice for two medium-sized loaves. The best brown bread, however, is that which is made in the form of

GEMS

and I find that the proper proportions are about as near the following as any when we consider the differences in the quality of Graham flour furnished by grocers: One quart of cold water; three pints of Graham flour. Pour the water into a pan, and sift the flour slowly in the water with the left hand, and stir at the same time with the right hand, using a wooden spoon. Stir and beat up the mixture about ten minutes to aerate it thoroughly and render it uniform. Meanwhile the Gem pans should be on the stove heating, a very thin coating of good olive oil, or butter being spread upon them to prevent the dough from adhering to the iron. When the mixture is ready fill the pans, allowing for expansion in baking, and place them in the oven, which should be very hot. The baking will occupy from thirty to forty minutes, and the secret of success in the production of beautiful, light loaves is quick baking.

MRS. H. S. D.

PREVENTION OF BOILS.—A St. Petersburgh physician, Dr. Sieven, commends a very simple treatment for the prevention of this painful form of abscess. He claims that if the skin be superficially scraped with a small knife, so that a drop or two of blood may be pressed through the epidermis as soon as the peculiar stabbing or pricking sensation and slight induration announce the commencement of the boil, it will not be further developed.

# NOTES IN SCIENCE AND AGRICULTURE.

**The Scottish Railway Disaster.**—The civilized world was shocked on hearing of the terrible disaster which occurred at the Tay Bridge in Scotland in December last, and where many lives were lost. During a very heavy gale or hurricane, a train, while crossing, was precipitated for eighty-eight feet into the river. Whether the central portion of the bridge had fallen before the train arrived, or whether the super-added weight of the train caused the breakage of the bridge, is a matter of conjecture. No one was saved to tell the details.

The Tay Bridge is the largest iron bridge in the world, and has been considered one of the most important engineering works in Great Britain. It crossed the Frith of Tay, and was 10,320 feet long. The bridge comprised 89 spans, 14 of the spans, over the navigable portion of the river, being 200 feet each and giving a clear headway of 88 feet above high water. It was at this point that the bridge gave way.

The magnitude of the bridge, and the novelty and ingenuity of the means employed in its erection, gave it rank with the most interesting civil-engineering works ever carried to completion. The disaster, however, will call more direct attention to the details of its construction, the defects of which will now have to be carefully studied. Another large bridge of the same general character is now in course of construction, but it is highly probable work on this will be discontinued, pending investigation of the defects of the other.

**To Raise Cranberries in the Garden.**—F. Trowbridge, of Milford, Conn., says: "Every family can have their garden patch. A moist but not clayey soil should be selected, and the ground prepared by plowing or spading, as for strawberries; the entire surface should be covered one or two inches with fine peat or muck, or one or two inches of sand can be substituted. They can be planted one foot to eighteen inches apart, four to six inches in depth. They are highly ornamental in pots, the fruit hanging on the vines until the blossoms appear for the next crop. In some places experiments have been made successful in raising the cranberry in ordinary garden soil, and Mr. Downing has stated that a plat of the size of twenty feet square, planted properly, will yield three or four bushels annually; quite sufficient for a family. Experiments in New England indicate that the cranberry can be cultivated on upland, though generally with moderate success. On Long Island, however, there are cranberry patches of five or six acres, on high upland soil, that produce fifty to one hundred bushels per acre, which is considered a satisfactory result, as manure is unnecessary, and the trouble of cultivating, gathering and marketing the cranberry is less than that required by the strawberry or any small fruits."

**Increase of Lunacy in England.**—Dr. Lush, the President of the British Medico-Psychological Association, in the course of an address, drew attention to a marked increase of late years in lunacy. In the first report of the Commissioners on Lunacy they state that in June, 1846, there were in England and Wales 23,000 persons of unsound mind. The population was then about 17,000,000, now it is 25,000,000, and it is estimated that on the first of January, 1879, there were 70,823 persons in England and Wales who needed the protection of the lunacy laws. It appears, therefore, that while the population has increased at the rate of forty-five per cent., the number of lunatics in detention has risen at the rate of 250 per cent. Assuming that another thirty-three years will yield similar results, accommodation will have to be provided in 1912 for nearly a quarter of a million of insane or imbecile persons in England and Wales. The true solution of the difficulty, he thought, is to be sought—1st. In increased family responsibility; 2d. In educating the popular belief in the gravity of the disease itself; 3d. In further State interference if possible; 4th. In increased efforts to make the lot of insane persons under detention as little irksome as is consistent with safety and the conditions of their malady. Beyond these he feared not much can be done or hoped for; less ought not to be required; and if, instead, a callous indifference continues to prevail as to the extent of insanity, grave and calamitous results, to be discovered only when too late to be repaired, must follow a neglect of the accepted teachings of medical science and experience. These reflections may be applied to our people's mental condition in America.

**Keeping the Soil Rich.**—General Grant says that when in China he was shown a piece of land which had been under cultivation every year for 5,000 years without deterioration of the fertility of the soil. The result is effected by returning to the soil everything taken from it. Fish constitutes a large proportion of the food of the people, and offal not consumed for human food is carefully applied to the soil, and fish is a great fertilizer. Even the roots of the wheat—wheat is grown to a very limited extent—are taken and rotted in a compost heap and returned to the soil. All the leaves and garbage are utilized in the same manner.

**The Reward of Intelligent Industry.**—The *Recorder* of Americus, Georgia, reports the case of a farmer near that place whose experience shows very clearly what there is in the common Southern complaint

that farming can not be made to pay in the South. Of this man the *Recorder* says:

"He began life since the war, a poor young man, as a farm hand, working for wages. He has inherited nothing, and has been engaged in no business except farming. He, this year, will make ninety bales of cotton, has not brought a single bale to market, does not propose to sell a bale before spring, and he is able to hold it. He owns one of the best plantations in Southwest Georgia, and it is his boast that he buys nothing upon which to feed man or beast, except sugar and coffee, but, on the contrary, has something to sell of almost any product of Southern soil. Last year he made 1,600 gallons of syrup, and this year has sold over 200 pounds of butter."

On this the *Scientific American* comments: "If such examples are rare in the South—as they probably are in too many parts of our country—the fault lies more in the men than in their surroundings. There is no part of the settled portions of the United States so poor in natural advantages and opportunities that men of intelligence, pluck, and energy can not win therein, if they will, a fortune which, in comparison with that of their less enterprising neighbors, may seem phenomenal."

**Marking Patented Articles.**—The Patent law says: "All patented articles must be marked with the word 'patented,' together with the day and year the patent was granted. If the article itself can not be so marked, a label containing the notice must be affixed to the package containing one or more of the articles. The marking is intended as a notice to the public that the thing is patented, and, in any infringement-suit by the party failing so to mark, no damages shall be recovered by the plaintiff, unless it is proved that the defendant had due notice of the infringement. Any person who falsely marks an article patented that is not patented, or marks anything for which he has not obtained a patent with the name of another who has obtained a patent, or who marks an unpatented article with the word 'patent,' or any word importing that the thing is patented, for the purpose of deceiving the public, is liable to a penalty of $100 for every such violation of the law, one-half to go to the informer."

**What will Become of the Last Man.**—The *Scientific American* has lately arranged in contrast the guesses of science on the final scene of human existence, and one finds therein food for reflection concerning that much-talked-of conflict between Science and Revelation:

"1. The surface of the earth is steadily diminishing, elevated regions are being lowered, and the seas are filling up. The land will at last be all submerged, and the last man will be starved or drowned.

"2. The ice is gradually accumulating at the North Pole and melting away at the South Pole; the consequence of which will be an awful catastrophe when the earth's center of gravity suddenly changes. The last man will then be drowned by the rush of waters.

"3. The earth can not always escape a collision with a comet, and, when the disaster comes, there will be a mingling of air and cometary gas, causing an explosion. If the last man is not suffocated, he will be blown up.

"4. There is a retarding medium in space, causing a gradual loss in velocity in the planets, and the earth, obeying the law of gravitation, will get closer and closer to the sun. The last man will be sun-struck.

"5. The amount of water on the earth is slowly diminishing, and, simultaneously, the air is losing in quantity and quality. Finally, the earth will be an arid waste like the moon. The last man will be suffocated.

"6. Other suns have disappeared, and ours must sooner or later blaze up and then disappear. The intense heat of the conflagration will kill every living thing on earth. The last man will be burned up.

"7. The sun's fire will gradually burn out and the temperature will cool. The earth's glacial zones will enlarge, driving our race toward the equator, until the habitable space will lessen to nothing. The last man will be frozen to death."

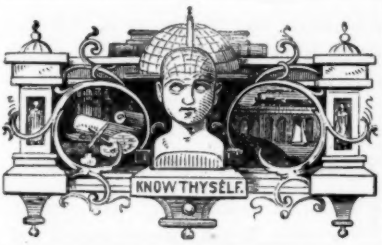
**Effect of Large Cities upon Agriculture.**—Mr. Mechi, the agriculturist, deplores the agricultural loss involved in river-pollution, and recalls the words of Liebig: "The sewers of Rome engulfed in the course of centuries the prosperity of the Roman farmer; and, when the fields of the latter would no longer yield the means of feeding her population, the same sewer devoured the wealth of Sicily, Sardinia, and the fertile lands on the coast of Africa." He adds: "Large towns, like bottomless pits, gradually swallow up the conditions of fertility of the greatest countries." Mr. Mechi estimates that it takes the annual produce of 20,000 acres to feed London one day.

**Vase Culture of Ivy.**—In a late number of the *Garden*, Mr. J. McNab, of the Royal Botanic Gardens, Edinburgh, recommends the vase culture of ivy in moss and water for drawing-room purposes. The directions he gives for its management are as follows:

"The ivy should be grown in long opaque glass jars and vases, and it is essential that such vessels should be wide at the top, so that the plants, after being properly rooted, can be taken out, and the jars cleansed when necessary. In the selection of ivy for vase culture, long pieces with small leaves are to be recommended; those taken from the stems of the trees, where the points are inclined to be pendant, will be found to answer best, such ivy having generally stout stalks covered with ærial roots. Each vase, according to its size, should contain three, four, or five pieces, each piece being rolled up separately

in a small portion of hypnum or sphagnum moss, the latter being preferable.

"After this, tie all the pieces loosely together in a clump to suit the width of the vase, and place them in it so that the ball of moss does not reach within five or six inches of the bottom. It will be necessary to keep the water in the vase about half-way up the moss till the cuttings are properly rooted. From the moss the roots will extend into the water below, and it will be found that these roots produced in the moss and water will be quite sufficient to nourish the plants. Cutting plants whose roots have been produced in soil, if lifted and placed in vases, will ultimately do well, but the probability is that the roots will die and the plants for a time sicken until new fibers are formed capable of enduring moss and water culture. After the ivy is properly rooted the glass jars may be kept full of water, and sprigs of flowers may also be inserted in them. The water and flowers may be changed when necessary, and even the ivy, whose roots ought now to be a solid mass, may also be taken and replaced at pleasure, without injury."




MRS. C. FOWLER WELLS, *Proprietor.*
H. S. DRAYTON, A.M., *Editor.* N. SIZER, *Associate.*

NEW YORK,
MARCH, 1880.

## LIBERALISM AND PESSIMISM.

ONE feature of the "advanced thinking" of which we hear so much to-day, is its sadness. The advocates of liberal religion or skepticism, and of evolution according to Darwin, Herbert Spencer, etc., in their stalwart attacks upon the old beliefs, have scarcely a cheerful word to say. With stoical calmness they seek to remove the underpinnings of Christian faith, and at the same time point an icy finger to a method of growth from primordial forms, which includes the world of matter and mind. A rigid, arbitrary system, divested of all warmth of sentiment, of faith in the past, and of hope in the future, is upreared by these gentlemen, and we are asked to admire it!

How pleasant it is to be informed that we have been entertaining a chimera; that all the teachings of prophets, apostles, and divines, about life, death, immortality, heaven, and God, are vain and delusive! How soothing to an earnest ambition is the "scientific" assurance that we are living in a mere period or stage in the grand order of development—an advance, to be sure, upon what has past; but after all, notwithstanding our seeming elevation, culture, and capability, we shall pass away into nothingness, and other periods succeed which shall be vastly superior to ours!

Certain of these "advanced thinkers," indeed, admonish us that it is comforting to think that we live in a late stage of evolution, and that we possess so many advantages over the half-fledged human beings who preceded us. They reason that it is better to have lived and died than never to have lived at all—somewhat after Tennyson's

> "'Tis better to have loved and lost,
> Than never to have loved at all."

Cold comfort this. All the yearnings, ambitions, feelings, inspirations, and convictions of the human soul go for nothing in the view of such men. There are great "sun-crowned souls" among us who "live above the fogs," and with more than mortal prescience depict the glories of a life beyond this. In their presence we

catch a glimpse of the perennial day beyond the horizon, and the conviction that there is something within us besides "potent matter" thrills our whole being. Can this be nothing but delusion?

Very recently we have had a singular exhibition on the part of certain prominent teachers of science. The New York *Independent* published an article in which it was stated that the doctrines of evolution were accepted and taught by the professors of science in our leading colleges, even as far as that doctrine enunciated the proposition that "man is descended from irrational animals." The New York *Observer*, taking up the matter with indignant earnestness, corresponded with eight or nine of the most eminent American teachers of physical science, among them those holding chairs in Harvard, Yale, Princeton, Union, Cornell, and Brown Universities. The outcome of the matter appears to be that nearly all who were asked to state whether the *Independent* was warranted in its declaration, express an unwillingness to be classed among the disciples of Darwin; and whatever their personal opinion, do not *teach* evolution in their classes. We opine that these gentlemen, when brought to reflect upon the moral drift of such a philosophy, are disturbed, perhaps pained, by its grim pessimism.

Evolution and infidelity are joyless; their motives are earth-bound, physical, selfish. How bitter was the cry of Byron, that passion-tossed, faithless man, who sought to exhaust life of its sources of merely physical enjoyment:

> "Count o'er the joys thine eyes have seen,
> Count o'er thy days from anguish free;
> But know whatever thou hast been,
> 'Tis something better not to be."

Contrast it with the cheerful, warm, and happy outbursts of men like Keble, Robertson, Young, or with the trumpet-challenge of our Longfellow:

> "Life is real, life is earnest,
> And the grave is not its goal;
> 'Dust thou art, to dust returnest'
> Was not spoken of the soul."

We wonder not that men who have, indeed, given their votes to the new philosophy, are inclined to abandon themselves to scientific investigations, that their minds may be employed, and the protest of the spirit drowned or obscured in the maze of controversy.

## IGNORANCE OR INTEMPERANCE?

THE strife which is kept up in society between classes, between capital and labor, between rich and poor, the educated and the ignorant, is sustained mainly by the vicious habits of people. Selfishness and greed enter largely into it, we must admit, but habits which unbalance the mind and pervert the judgment excite to excessive and permanent activity the selfishness displayed by employer and capitalist, and engender the brutishness of the laborer. Not long since we were wont to hear that ignorance was the chief cause of the ills suffered by society, and on this account economists have been loud in demanding more schools for the instruction of the masses. A glance at recent criminal statistics reveals the startling fact that ignorance is not necessarily or normally a factor of crime. Ignorance, in a man, implies a lack of purpose in life, inability to employ the forces of mind and body with certain effect, and some degree of moral weakness, but not of necessity a vicious or criminal disposition. The ignorant man craves recreation as much or more

than the educated, and his amusement must be of a low mental grade; hence his liability to yield to vicious influences, and especially to temptations which have the sanction of law.

Of 478 convicts that were admitted to the Eastern Penitentiary of Pennsylvania in 1878, 79 only were pronounced thoroughly illiterate; 371 had attended the schools, their average age on leaving them being *over seventeen* years. Of 962 prisoners in this same penitentiary, 745 were drunkards, 192 moderate drinkers, and only 20 abstainers. We are told, moreover, that 589 of these prisoners were under the influence of liquor when their crimes were committed, and that 367 were born of habitually-drinking parents.

Take the criminal statistics of any other State and their verdict will be much the same. Some years ago, an examination was made of the jails in New York, with the result that fully seven-eighths of the prisoners were known as drunkards at the time of their admission. From across the sea comes some very powerful testimony in the same line. When the Commune was suppressed in Paris, among the prisoners were 500 boys, from nine to fifteen years old. They were sent to the Reformatory at Rouen, and there an examination showed that 337, the most mischievous of the lot, were the children of drunken parents.

In the working of political machinery, liquor has usually been considered an indispensable lubricant; but we have lately had, even from politicians, an expression of opinion which should command the respect of every one. A resolution was offered at the Democratic State Convention of Maine last year condemning prohibition and approving license; but a large majority voted it down. What was that but a political confession of the great moral and physical harm of drinking practices? Just now the same State has given us a strange spectacle of two parties contesting for the honors and emoluments of office, and each claiming title by election. Yet, amid all the excitement, we hear of no brutal affrays, no bloodshed. Would the men of Maine have urged their rights thus dispassionately were the dram-shops open, and the poisoning, maddening beverages called whisky, wine, and brandy at command, as in the days before prohibition? Could there be such factious bitterness and belligerency in any other State where liquor is free without violence to person and property? We think not.

## SNOW-EATING.

MEETING some children at play with their sleds lately, we observed that two or three of them were eating the snow, which, newly fallen, lay in crisp whiteness all around. We had done such a thing ourself in the days of careless boyhood, and no one had instructed us with respect to its harmfulness. Perhaps a word now, late as it is, may be in season. During the winter many "colds," sore throats, croups, and other disturbances of the mucous surface of the passages to the lungs and stomach among children are entirely due to eating snow. A child has been out with his sled, having a glorious time, and enters the house at nightfall in all the glow of health and spirits. His mother regards him with pride, and hastens to respond liberally to his wish for supper. Two or three hours later the boy complains of "things sticking in his throat;"

he "can't swallow without its hurting." An examination shows a red and swollen throat, and sudden fears of croup or diphtheria possess the parental mind. "I wonder how it could happen? What have you been doing?" is anxiously asked.

"Haven't been doing anything, mamma," is the urchin's reply.

"Were your feet wet when you came in?"

"No, mamma, 'cause I had my arctics on," the boy returns with thickened utterance.

Of course he does not understand how his chewing up two or three hard-packed snow-balls that afternoon, as if they had been so much candy, could make him ill. His playmates set the example, and he thinks it right.

Well, mamma deems it a singular attack, and sets to work, as best she knows how, to treat it.

The practice of snow-eating has much to do with the head-colds and "running noses" of many girls and boys, because the chilling effect of snow upon the hard palate or thin partition between the mouth and nostrils is productive of congestion in the fine membrane which lines its upper surface. As this membrane is almost entirely constituted of delicate nerves and blood-vessels, inflammation is likely to follow the congestion, and that may prove very troublesome, perhaps degenerating into nasal catarrh, an affection so common with us of the North that it needs no description.

We know only too well the annoyances of catarrh, having suffered more or less with it from boyhood. How much it was occasioned by snow-eating we can not tell, but we would urge those of our readers who have families to warn their children against the practice.

## CONSISTENCY'S A JEWEL.

OUR near neighbor, the *Christian Advocate*, had a brief item among its editorials lately, which ran like this:

"THE NEW YORK LEDGER.—In our Christmas number there appeared an advertisement of the *New York Ledger*, which made its way into the business department of the paper without the knowledge of the publishers. The clerk having the advertisements in charge, knowing that Dr. John Hall is a contributor to the *Ledger*, did not regard it as doubtful, and so inserted the advertisement without consultation or authority. It is not the policy of the *Christian Advocate* to fight on both sides of so important a question as the one involved."

Good! we exclaimed, the veteran representative of Methodism in this country is on the side of healthy literature, and is not afraid to give strong expression to its convictions.

We like the Methodists as a class, and, of course, the positive tone of the above item added a degree or two to the temperature of our regard. With rather generous emotions, therefore, we turned over the leaves of the edition and glanced carelessly down its advertising columns. Hallo! what's this?

"——'s Best Liver and Kidney Regulator. . . . . Best Brain and Nerve Tonic in the World," etc.

Another:

"——'s Digester cures Dyspepsia," etc.

And another:

"Cancer cured by ——; . . . . Doctors, ministers, and the poor Cured Free! . . . . Send for Dr. ——'s Asthma Specific and other remedies," etc.

And another:

"Catarrh is a Terrible Disease! Its fearful effects—corruption running down the throat, weak eyes, deafness, loss of voice, loss of smell, disgusting odors, nasal deformities, and finally consumption! . . . . Dr. ——'s Inhalant . . . . the most

healing remedial agent known to science," etc., etc.

And still others, which we have not space to notice.

Well! ha! ha! ha! We see now that paragraph about the *Ledger* was only meant for a joke. That's all. Why don't the *Observer, Independent, Churchman, Baptist Weekly, Christian Union, Methodist*, and other leading religious weeklies print similar edifying matter in their business departments? And this is one great reason why the thousand-and-one manufacturers and dealers in quack nostrums flourish at the expense and sorrow of the people.

# Our Mentorial Bureau.

"He that questioneth much shall learn much."—*Bacon.*

## To Our Correspondents.

QUESTIONS OF "GENERAL INTEREST" ONLY *will be answered in this department. But one question at a time, and that clearly stated, must be propounded, if a correspondent shall expect us to give him the benefit of an early consideration.*

IF AN INQUIRY FAIL TO RECEIVE ATTENTION *within two months, the correspondent should repeat it: if not then published, the inquirer may conclude that an answer is withheld, for good reasons, by the editor.*

WE CAN NOT UNDERTAKE TO RETURN UNAVAILABLE *contributions unless the necessary postage is provided by the writers.* IN ALL CASES, *persons who communicate with us through the post-office should, if they expect a reply, inclose the return postage, or what is better, a prepaid envelope, with their full address. Anonymous letters will not be considered.*

LOCATION OF ORGANS.—*Question:* In the anatomy of the human brain we find it to be divided into two hemispheres, right and left, with a vacancy intervening. Why do you locate organs in this vacancy, the material not intervening and not entering into the constitution of the brain? H. W. S.

*Answer:* If you have had the numbers of the PHRENOLOGICAL containing the series of articles entitled "Brain and Mind," by reference to the "description of the organs and their location" upon the hemispheres, you will find that we do not locate organs upon vacancy. The most important organs of the brain are centrally situated, so far as the skull is concerned, but they actually occupy the superior margins of the hemispheres. As the organs are double, these central pairs exercising the same functions being neighbors—as, for instance, Comparison, Human Nature, Benevolence, Veneration, Firmness, Self-esteem—they are indicated upon the mapped bust by a single name. Perhaps it would be better to divide the space allotted them through the center, for the sake of correctness.

BRILLIANT PEOPLE.—*Question:* Why are people with large perceptive organs brilliant, off-hand, able to tell what they know, appear to know all they really know, and can speak without hesitation? I do not understand how these perceptive organs give quickness. G. H. C.

*Answer:* People who have large perceptive organs are naturally brought into closer relations with the facts of average life, than those whose reflective organs predominate in the intellect. They appreciate the relations, qualities, conditions, and characteristics of things, and accumulate facts and data. In the discussion of subjects, particularly those of a practical sort, or what otherwise might be termed the objective, such persons can readily draw upon their memory's stock. Reflective people, not having so much data at command, must think out what they shall say; must reason, theorize, discuss, and, to a large extent, their brains act, as it were, creatively; they must make up the subject-matter of their talk as they go along, while the man of observation has the material ready-made.

TROUBLESOME TEETH.—W. M. S.—Read the article in this number on the care of the teeth. It will probably give you some hints which will clear up the mystery. We are of opinion that there is an accumulation of tartar at the roots.

DIGESTION.—F. J. D.—Your system has become somewhat weakened, run down, we think, and there is associated with the condition a sluggishness of the digestion and assimilative functions. You must rigidly adhere to the line of diet which you have selected; eating food that is nutritious and not abnormally stimulating. An occasional enema with warm water would be healthful. Don't, however, make it a daily practice, otherwise the organism will grow to it, and you can scarcely get along after a while

without the practice. Eat liberally of fruit; not of that which is too tart. At this season of the year it would be best to have it stewed. Prunes, apples, dried peaches, canned fruits, etc., are suitable. Take a morning bath with a sponge, using tepid water, and end with a brisk rub with a Turkish towel; this will tone up your nervous system and help to inspire the bodily functions with renewed activity.

SIGNS OF DISEASE.—*Question:* Will you please tell us the signs of an abnormal or diseased condition of the stomach, lungs, liver, heart, and circulation of the blood as manifested in the face; also their healthful or normal conditions?

*Answer:* We have not space to indicate the signs; so numerous and complicated are they that many volumes are filled with their description. Permit me to refer you to the new excellent and very extended medical work entitled "Ziemssen's Cyclopedia of Medicine." You will find in that book nearly all known diseases carefully described and their symptoms elaborately indicated.

THE TEACHER.—A. S.—When a man has to train the young idea he should have a well-balanced temperament. In other words, the vital, motive, and mental elements should be of nearly equal strength. A slight predominance of the mental would work no damage, to be sure; but unfortunately the rank and file of our teachers possess that in excessive predominance, while their vitality is deficient, and for that reason their teaching is not characterized by harmony and efficiency. Invalided persons are unfit for the duties of a teacher. A child has a right to strong, robust instruction, and not mere puny text-book service.

RIGHT-HANDED—THE USE OF THE RIGHT HAND.—The superior training of the right hand in the affairs of life is the heritage of ages. There are many operations which require the use of but one hand; and it seems but natural that in process of time that one should have taken the lead in their performance, and the tendency has been transmitted. Children generally show a disposition to use the right hand more than the left. We agree with you that we should be able to use both hands with equal facility. Some men do appear to be ambidexterous. There are anatomists who claim that the left hemisphere of the brain has a controlling influence in mental life, and for that reason the right side of the body is more exercised than the left. It is true that one hemisphere is more exercised than the other, and it is usually the left which dominates, but both are essential to completeness and harmony of mental operations.

J. S. W.—Could I learn Phrenology by procuring the "Student's Set," and studying the works carefully, so that I might succeed as a practical phrenologist, without taking a course of instruction at the AMERICAN INSTITUTE OF PHRENOLOGY?

*Answer:* Yes. We learned the science from books, but we worked fifteen years, experimenting, making mistakes and correcting them the next time, before we mastered as much theoretical knowledge as students are able to acquire in a course of instruction in the Institute. Besides, now, the people in general know more of the subject than they did when we were beginners, and lecturers and examiners are required to know more than was necessary forty years ago. You *could* study boot-making from books, but your first practical work would show a great difference when compared with boots made by one who had been taught and drilled. N. S.

*Several* ANSWERS *must be deferred to the next number.*

## What They Say.

*Communications are invited on any topic of interest; the writer's personal views and facts from his experience bearing on our subjects, being preferred.*

ALASKA—WHAT IT MAY BE.—It has been suggested that the American Government appropriate Alaska as a place of banishment for criminals. To many minds there is an impressiveness in this suggestion which renders them intensely earnest to have it receive the consideration it deserves.

England, one of the greatest and wisest nations, long since adopted a mode of punishment which might have been a pattern to others. Russia, cruel in her Siberian banishments, has lacked the Christianity which should have made her Siberian deserts abodes of mercy. It remains for the American Government to form and carry out a plan which shall be just, yet merciful, full of the life and spirit of Christianity. We have broad lands in Alaska, with riches in every foot of the soil, containing resources sufficient to sustain a great population. We have men who can be spared to oversee those lands and to guard and defend all who are placed there. Why should lives and property and peace be endangered and sacrificed every hour, by the presence of creatures to whom our beneficent laws have no terror, when Divine law is utterly unheeded, and human law is hourly trampled underfoot? What can be done but to cause both to take hold of evil with a force which shall overcome?

Banishment and confinement from which there shall be no escape will probably effect this. Send the criminal of high grade to find a dwelling-place in far-off Alaska. Here, at home, the masses of the vicious huddle together in guilty companionship, contaminating and being contaminated in unhealthy and often the filthiest localities, engendering each day new forms of sin, and multiplying vices every hour. The sweet word home is unknown to them, much less the sweetness and purity of its realities. Take them to Alaska—in its wide domains and purifying airs, let them find health for souls and bodies. Would it cost more to send them and station such guards as they would require, than it does now to employ detectives and an expensive police? more to build abodes for the solitary criminal or for families, than to keep up costly prisons and places of confinement in the numerous wards of large cities?

The benevolence of the churches would certainly aid the Government by sending teachers and missionaries to help the work of reform. And a noble work it would be! Let the seething crowds which infest the outskirts and heathenish localities of cities and towns, be moved in masses to this land of hope, and the war against intemperance would have almost no cause for existence, and women would not struggle to save their country at the peril of their lives.

Another and most important thought in connection with the benefits of this emigration to Alaska, is the fact of those sent there being compelled to find materials for building their homes, and also compelled to build for themselves, would give employment, interest to their minds, and divert and destroy the wickedness which idleness produces. And all these would in time "pay" the care and trouble required to accomplish this great enterprise. REFORM.

A SCHOLAR'S EXPERIENCE.—I have an impression that a statement of my student experience on the study of mental and moral science might profit our College and University undergraduates, if it could be laid before them.

Forty-seven years ago, the first Junior Class of Wesleyan University ever formed, studied "Upham's Mental Philosophy," under that best and ablest of teachers, Dr. Wilbur Fisk, the then President. In that class I studied on week after week in hope of learning how to read and handle human nature—accomplishments that seemed important for everybody, but specially so for the pastor, teacher, and legislator. This view, held in my teens, has been strengthened and enlarged by the subsequent experience of nearly a half century. Every undergraduate who hopes, in due time, to win the heart and hand of some noble, patient maiden, will easily comprehend one point of the enlarged experience referred to. Well, Upham was studied, finished, shut; but we had made no advance toward practical knowledge of human nature. Man had intellect, sensibilities, will; but *cui bono?*

Hope then suggested that other authors on mental science might be found more practical and valuable; so, long weeks of vacation were given to plodding through the great works of Locke, Reid, Brown, Stuart, etc., etc.; but all in vain! Not to be foiled thus in what seemed the most important of all scientific studies, a note-book and pencil were devoted to this study, all accessible specimens of humanity were observed and the results noted down. To a mere student of books this was tedious work, but it was continued for months. Relief came at last. One day, while looking over the magazines in the University Reading-room, a brief article on Gall, Spurzheim, and Phrenology, was discovered—my first hint of the birth of the infant science. It was so promising an infant that I ordered at once the works of both authors, and these works were a feast to a soul long starved on metaphysical fogs. The claims of Phrenology were at once verified by observations on some of the larger organs, such as Causality, Benevolence, Firmness, etc. Experts have since been found who would describe the characters of my very intimate friends with marvelous accuracy, and do this even when so blindfolded as to be wholly unable to read a feature of the face.

Many men of culture, warped by tradition and perchance by a little pride, tenaciously hold that thought, affection, and will, are purely products of an immaterial, unit-soul. These shrink from Phrenology as tending toward materialism and fatalism. Yet on every side lie proofs that brain is a most important factor in the production of thought. The infant brain is small and feeble, its mind corresponds. Every hard student has experienced a weary, aching brain, caused by unwise overwork, medical stimulants, sedatives, brain-lesion, compression, concussion, diet, digestion, and even the weather, affect thought. Mental and moral qualities are inherited through material organism. Monomania and partial insanity, require a complex brain, partly diseased, partly well. Our wild, incoherent dreams prove a brain partly asleep, partly awake. These few hints may awaken attention.

A Southern student, a perfect stranger to me, once applied for admission into my boarding-school. Noticing an unusual development of Destructiveness and Secretiveness, I feared to admit him, and declined to do so. He entered another, not remote institution, and in about three months was expelled therefrom for assault, with apparent intent to kill!

Undergraduates, students everywhere! You can not *afford* to neglect the study of Phrenology.

D. H. CHASE.

## PERSONAL.

JULES FAVRE, eminent as a Republican statesman in France for more than thirty years, died in January last. He occupied a high place in the Provisional Government of 1871-72, and afterward retired to private life.

MR. EDWARD MCPHERSON is quoted as saying that there are hardly five per cent. of the graduates of the colleges of this country who are good spellers. We don't know the weight of Mr. McPherson as an authority, but we are inclined to believe his statement from our own experience.

JOHN B. GOUGH is 62 years old, has traveled 420,000 miles, delivered 8,000 lectures, and, during twenty-five years, it is said, has not spent a day in bed from illness.

MR. T. J. WYSCARVER, of Columbus, Ohio, has sold his interest in the *New Era* on account of professional engagements, which demand all his time.

STEWART BROWN, of the old banking house of Brown Brothers & Co., New York, died January 30th, in the seventy-ninth year of his age. In his private relations he was highly esteemed for his kindliness, courtesy, and strict integrity. He took an active interest in benevolent enterprises, and was very liberal toward charitable work, though exceedingly unostentatious in his manner of giving. During the last ten years he had devoted his time chiefly to many philanthropic institutions with which he was connected.

## WISDOM.

"Think truly, and thy thought
Shall be a fruitful seed."

THE misfortune of happiness is satiety, and the happiness of misfortune is hope.—*Champfort.*

CAN there be no sympathy without the gabble of words?—*Charles Lamb.*

A FRIENDSHIP will be young after the lapse of a century. A passion is old at the end of three months.—*Nigu.*

TAKE all sorrow out of life, and you take away all richness and depth and tenderness. Sorrow is the furnace that melts selfish hearts together in love.

LIFE is a slate where all our faults are written. Occasionally we rub over it the sponge of repentance, that we may commence writing our faults anew.—*Lemisle.*

UPHOLD truth when thou canst, and for her sake be hated; but know thy individual cause is not the cause of truth, and beware that they are not confounded.

"To the sunny soul that is full of hope,
And whose beautiful trust ne'er faileth,
The grass is green and the flowers are bright,
Though the winter storm prevaileth."

GOOD books are to the young mind what the warming sun and the refreshing rain of spring are to the seeds which have lain dormant in the frosts of winter.—*Horace Mann.*

AT whatsoever moment you catch yourself trying to persuade yourself that you are particularly humble, be assured that then you are farthest from humility.

"YOUNG man," says a quaint writer, "if you are to be married, your future wife is now living; therefore, pray for her. And while you are about it, don't forget to pray for her future husband; he needs praying for as much as she does."

IT is easy to advise a person, but how difficult to receive, under similar circumstances, that same advice from another, because we are so prone to believe that what we accept is truth, and that those who can not see with our eyes are all wrong.

## MIRTH.

"A little nonsense now and then
Is relished by the wisest men."

IT is pretty tough to be poor, but being ashamed of it is putting salt on a sore.

IN Extremis—Pat: "Do you buy rags and bones here!" Merchant: "We do, sure." Pat: "Thin, be Jabers! put me on the schkales."—*Punch.*

"YOU never saw my hands as dirty as that," said a petulant mother to her little girl. "No, but your ma did," was the sharp, if not respectful reply.

AN APOLOGY.—"But, Freddy, how could you ever think of calling aunty stupid? Immediately go to her and tell her that you are sorry." Freddy goes to aunty and says: "Aunty, I am sorry that you are stupid."

THE Western lady who read in a newspaper that baking powder was a good thing, thought she'd bake some, and her old man, on arriving at where the cabin had stood, said he wouldn't mind the affair so much, if she'd let the dog out.

An Irishman who stood near the third base, watching a game of base-ball, was knocked down by a foul ball, as he heard the empire call it. "A fowl, waz ut? Faith, I thought it was a mule!"

The poetess sat in her easy-chair,
Ink-smeared was her face and unkempt her hair,
And untrimmed were the nails on her fingers.
Her round, red heel it peeped out through
A hole in her father's cast-off shoe,
As she sang, "Ah! the soul still lingers!"

## Library.

*In this department we give short reviews of such* New Books *as publishers see fit to send us. In these reviews we seek to treat author and publisher satisfactorily and justly, and also to furnish our readers with such information as shall enable them to form an opinion of the desirability of any particular volume for personal use. It is our wish to notice the better class of books issuing from the press, and we invite publishers to favor us with their recent publications, especially those related in any way to mental and physiological science. We can usually supply any of those noticed.*

In Prison and Out. By Hesba Stretton, author of "Max Kromer," "Alone in London," etc. 12mo. pp. 269. New York: Dodd, Mead & Company. $1.25.

Scarcely any exception may be taken to the books of this author. They breathe a pure morality; they teach, with almost too much directness for novels, principles of Christian virtue. The true novelist appears to the reading public as a delineator of human life in certain of its recognized phases, and his method is to illustrate virtue and vice, by the conduct of his characters rather than by making Miss Jones or Mr. Blue deliver long essays on the proprieties and preach up the merits of truth and consistency. There is a good deal of earnest preaching in our author's books, but it is through the talk and action of her characters. Yet the talk rarely takes in the tone of the platform or pulpit.

"In Prison and Out" is a story of English life in its phase of bitter poverty and sorrow, as exhibited by many a member of the working class. Purity and truth are strongly contrasted with crime and vice, and incidents exemplifying judicial severity toward young offenders are woven in for the purpose of showing how law and justice may conduce to wreck a life. There is no exaggeration, no romantic yearning, no effusion of empty sentiment, but a vivid portrayal of the too true of life. The reader points the moral as he reads, and closes the book with the deep-drawn wish that our vaunted civilization would busy itself more about the reform and education of the masses than with overestimated feats of art and literary culture.

Brant and Red Jacket. Including an account of the Early Wars of the Six Nations, and the Border Warfare of the Revolution. By Edward Eggleston and Lillie Eggleston Seelye. 12mo. pp. 370. Price, $1.25. New York: Dodd, Mead & Co.

Still another volume in the series of "Famous American Indians." The authors have undertaken a worthy purpose; viz, to supply our youth with reading adapted to the craving of young minds for the marvelous, but such reading as will stimulate their ambition healthfully, and at the same time give them historical information of a useful sort. The present volume covers a wide range in the early days of New York, and the graphic portrayal of incidents in those wars which were sustained by the famous Five Nations, forms a chain of interest very entertaining. Brant and Red Jacket are, of course, the principal characters, but sketches of the part played in the stirring life of the early settlements on the Mohawk, the Seneca, and the lakes, by such men as De Champlain, Sir Wm. Johnson, King Hendrick, the Mohawk chief, Montcalm, and General Herkimer, are given. The ferocious as well as chivalrous phases of war are depicted, and in the space of a single moderate-sized volume a comprehensive survey is furnished of the times of Brant and Red Jacket.

The Phrenological Magazine: A Scientific and Educational Journal. No. 1, January, 1880. L. N. Fowler, Publisher, London.

We are pleased to know that our friends on the other side of the Atlantic have deemed the time favorable for the publication of a magazine in the interest of Phrenological science. This first number is unambitious in style, but interesting and attractive in matter. A portrait and delineation of Mr. Gladstone, "Phrenology in England," "Phrenology and Education," and "The Colour Sense," are the *pieces de resistance* of the number, while a pretty story, a sonnet, and several sketches, furnish an agreeable variety. The price, 6*d*. per number, or 6*s*. 6*d*. (about $1.50) a year, is moderate enough, and that, coupled with the excellence of the magazine, should draw a large subscription list.

Lessons in Lettering. By T. R. Gardner, author of "How to Paint," "Carriage-Painter's Manual," etc. 32 pp. Size, 12 x 14, paper covers. Price, 50 cents. New York: S. R. Wells & Co., Publishers, 737 Broadway.

This is a new work by the author of our well-known manuals on the subject of painting, and will be found useful, and probably become very popular among those for whom it is designed. It opens with an introductory, and then proceeds to give technical descriptions of the styles known as Roman, Full-Block, Half-Block, Outlines, Italian Block, and Italian and Back-Slope. He

then addresses specially wagon-painters, and gives full instructions regarding Full Balancing Letters, Methods of Shading, and making "The Cast Shadow," "Outlines," and hints for Gilding, Gold-Size, Lettering on Glass, etc. There are besides several pages of well-selected sample alphabets, including eighty varieties of lettering, with more than two thousand letters and numerals.

The book will be sent to any address, postpaid, on receipt of price.

THE PLEDGE AND THE CROSS. A History of our Pledge-Roll. By Mrs. S. M. I. Henry, author of "Victoria," "After the Truth Series," etc. 16mo. pp. 256. Price, in cloth, $1. New York: The National Temperance Society.

A series of sketches drawn from life by the pen of a lady who has been personally active in reformatory effort in a Western city. They illustrate in a pointed manner what may be accomplished by earnestness and perseverance in redeeming poor slaves of drink, and making men who were deemed absolute nuisances and not worth notice, useful and respected citizens. Mrs. Henry's experience should encourage all the women and men who are engaged in the fight with alcohol.

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## PUBLICATIONS RECEIVED.

THE RELATIONS OF RAILROADS TO THE PUBLIC: A statement prepared by T. B. Thurber, of New York, with reference to discrimination in rates of transportation, whereby New York City is commercially injured. The railroad problem of the country is also discussed, and how the influence of capital bears upon the relations generally of commerce.

SIXTY-SECOND ANNUAL REPORT of the Society for Promoting the Gospel among Seamen in the Port of the City of New York, known as the New York Port Society. As our last number contained a sketch of the pastor of the New York Port Society, this document will be found interesting as an exhibit of his year's labor.

TEMPERANCE AND LEGISLATION. By Canon Farrar, D.D., F.R.S. An address delivered at a Conference in Sheldonian Theater, Oxford, England. A powerful discussion of the needed restriction by Legislation of the liquor traffic. Price, 10 cents, or $1.00 per dozen. Published by the National Temperance Society, New York.

PROCEEDINGS OF THE AMERICAN NUMISMATIC and Archæological Society of New York, at its twenty-first annual meeting, March 18, 1879. Interesting to those who have that peculiar fondness for accumulating coins and antiques. The report is in some respects instructive.

PROTECTION FOR THE WORKING-WOMEN. Report of the Sixteenth Anniversary of the New York Women's Protective Union, at Chickering Hall, December 8, 1879. This is one of our worthiest charitable organizations; its chief object is to protect working-women of all nationalities, colors, and creeds, against oppression and wrong. It has thus far answered 216,783 applications of various kinds; supplied 38,320 with employment; prosecuted 6,757 cases of complaint, and recovered and paid to its beneficiaries $22,066, which they would otherwise, doubtless, have lost entirely, through cruel or careless employers.

HARPER'S BAZAR. This representative of fashion, pleasure, and instruction, in its special line, continues to be the leading fashion weekly. It contains agreeable reading for an idle hour on many other topics than those of mere fashion.

REPORT OF THE COMMISSIONERS OF PUBLIC HEALTH RELATIVE TO LUNATIC ASYLUMS, transmitted to the Legislature May 12, 1879. This report embodies the details of the efforts made by certain medical gentlemen to secure the dismissal of certain officers connected with the administration of the lunatic asylums in this State. The testimony obtained by the committee certainly indicates that most of those who inaugurated the investigation, were actuated by feelings little above enmity and jealousy. The committee is evidently of the opinion that the attempt was a very foolish affair. We are pleased, especially with the honorable deportment of Dr. Ordronaux, the State Commissioner, and heartily agree with the opinion of the committee concerning his sterling integrity as an executive in that specially difficult branch of scientific oversight.

PETER HENDERSON'S CATALOGUE OF EVERYTHING IN THE GARDEN. 1880. A neatly arranged and well illustrated pamphlet of 120 pages.

HARPER'S YOUNG PEOPLE. An illustrated weekly publication by Harper Brothers, of New York, at $1.50 per year. It is certainly cheap enough as regards price, and entertaining, so far as its elements of juvenile fun are considered, but from such a source we should expect a publication which would compete somewhat with other juveniles in print.

THE MUSICAL HERALD. Published by the Musical Herald Company, of Boston, is a recent enterprise; and in style of typography and matter is very attractive.

MIND AND MATTER. A new candidate for the consideration of the reading public, devoted to the discussion of psychological and spiritualistic topics. Published in Philadelphia.

THE UNITED STATES GREENBACK LABOR SONG-BOOK. By Mary Dana Schindler, of Texas. Price, 15 cents.